

Engineering Services Division

Traffic Operations Committee

Meeting Minutes – January 21, 2014

Attendees: Rob Mack, PE, PTOE, Engineering Services

Ed Roberge, PE, Engineering Services Steve Henninger, Planning Division Greg Taylor, Concord Police Department Eric Crane, Concord Police Department Rick Wollert, Concord Fire Department

A. Regular Discussion Items

1) Overview of city-wide accident data, including prior-month accident summary and discussion of select accident locations, circumstances and potential action.

<u>DISCUSSION / ACTIONS</u>: Traffic accident data for December 2013 was reviewed. There were 117 reportable accidents in December 2013. This compares with 123 and 125 reportable accidents in December 2012 and 2011, respectively. 12 accidents resulted in total of 12 people injured, 2 of which occurred on Loudon Road. There were no fatalities.

There were no accidents involving pedestrians or bicyclists in December.

TOC overviewed 2013 annual accidents. There were 1,100 reportable accidents in 2013. This compares with 1,225 and 1,193 reportable accidents in 2012 and 2011, respectively, and is about 15 percent below the city-wide crash average of 1,296 over the prior eight years from 2005 through 2012. In 2013, 210 accidents resulted in total of 272 injuries and 2 fatalities. This compares with 351 injuries and 4 fatalities reported in 2012.

2) City Council meeting update.

<u>DISCUSSION / ACTIONS</u>: Council consideration of the Loudon Road Corridor Improvements Project (CIP #19) is scheduled for February 10, 2014.

3) Transportation Policy Advisory Committee (TPAC) update.

DISCUSSION / ACTIONS: TPAC did not formally meet last month, choosing instead to attend the December 18, 2013 public information meeting on the Loudon Road Corridor Improvements project.

B. On-going Discussion and Action Items.

1) Referral from City Council requesting an examination of traffic performance at the Regional Drive/Chenell Drive intersection (*Council: 08/12/13*).

<u>DISCUSSION / ACTIONS</u>: Rob Mack summarized that TOC had reviewed traffic operations and safety at this intersection on several occasions since the opening of Regional Drive in November 2004. The primary concern reported to staff by employees of businesses in the intersection vicinity has been long traffic delays during peak traffic periods for vehicles approaching the intersection from the southern leg of Chenell Drive (the cul-de-sac end) and attempting to turn onto or cross heavy traffic flows along Regional Drive. A TOC study in September 2007 found that traffic conditions did not meet minimum warrants for signalization or multi-way STOP control. TOC again reviewed intersection operations in November 2010 pursuant to additional public concerns on difficult peak-period egress from the south leg of Chenell Drive. Increasingly-restrictive sight lines were found due to private landscaping vegetation and the property owner cooperated with General Services in facilitating low-branch trimming. In FY2012, CIP 541 was initiated to include implementation of future intersection improvements. CIP 541 is currently programmed in FY20-21.

Regional Drive is classified as a Major Collector street and provides for east-west traffic movement through the commercial/industrial area of the Heights generally between I-93 Exit 13 to the west and NH Route 106 to the east. It is marked with two 12-foot travel lanes and wide shoulders for a total paved width of about 38 feet. The posted speed is 30 mph. Chenell Drive is a north-south local street providing access to local businesses to the south as well as a connection to Pembroke Road to the north. North of the intersection, Chenell Drive is about 34 ft wide and provides one travel lane in each direction. The southerly leg of Chenell Drive is about 42 ft wide and provides one very wide travel lane in each direction; the 21 ft width approaching the intersection northbound is sufficiently wide so that traffic tends to operate in two informal 'lanes' (albeit unmarked), one to freely turn right and one for left/through traffic movement. Regional Drive is the non-stopping through street and both Chenell Drive approaches are controlled by STOP signs. Pavement condition at the intersection is very good. Sidewalk is located along the northerly side of Regional Drive with a crosswalk located on the north leg of Chenell Drive. Street lighting is located on the southwest corner.

Staff conducted traffic volume and speed counts at the intersection location for a 48-hour weekday period in September, 2013. Regional Drive has about 9,800 vehicles per day (vpd) west of the intersection and about 8,050 vpd to the east. Chenell Drive has about 2,100 vpd and 1,650 vpd to the north and south of the intersection, respectively. Recorded traffic speeds along Regional Drive east and west of the intersection indicated average speeds ranging from 29 to 35 mph and 85th percentile speeds ranging from 37 to 38 mph. The posted speed limit on Regional Drive is 30 mph.

Intersection traffic peaks during the 4:00 to 5:00 PM afternoon commuter peak period when peak hourly flows along Regional Drive also coincide with peak flows exiting local businesses on Chenell Drive. Supplemental traffic counts conducted by staff in November 2013 indicate about 1,150 vehicles per hour using the intersection at this time. About 56 percent of this peak flow represents through traffic along Regional Drive, with the remaining 44 percent turning to/from Chenell Drive; this is indicative of a high percentage of cross-street traffic. A substantial volume of truck traffic also utilizes Regional Drive to access the many industrial/commercial uses in the area. During the PM peak hour, about 27 large trucks were counted traveling through the intersection along Regional Drive; only a handful of trucks were observed coming out of Chenell Drive (south) at this time. Higher volumes of truck typically occur during off-peak hours when overall traffic flows are substantially less.

Concord Police Department crash reports for the five-year period from January 2009 to December 2013 indicate 10 reported crashes, or an average of about two crashes per year. 90 percent of the crashes occurred during dry roadway conditions and 80 percent occurred during daytime. The predominant crashtype is Chenell Drive traffic failing to yield to Regional Drive traffic resulting in a right-angle crash; crashes are evenly split between the northbound and southbound Chenell Drive approaches. As an intersection

crash rate of five or more per year typically justifies further engineering investigation, the current rate of about two per year is not indicative of significant crash history.

Staff observed traffic operations at the intersection on a number of occasions. Overall intersection operation appears reasonable, particularly for traffic traveling along regional Drive. Adequate shoulder space allows through traffic to bypass vehicles momentarily slowing or stopping to turn left onto Chenell Drive. Traffic movements from the Chenell Drive approaches operate reasonably and with low delays for most hours, although delays can become long during the lunchtime and afternoon commuter peaks when increased left turns and crossing movements from Chenell Drive need to wait for limited gaps in heavier through flows along Regional Drive. The most profound delays appear to be the Chenell Drive northbound left/through movement, which during peak times is the heaviest side-street crossing movement at the intersection, generally concurrent with employee release times at local businesses south of the intersection. Queues of up to six vehicles waiting at the stop sign were observed on a number of occasions, although all vehicles were able to clear the intersection in the course of a few minutes. Although some risk-taking by several drivers was observed, most drivers turning out of Chenell Drive did so appropriately.

Operational analysis of afternoon peak-hour traffic conditions using Synchro traffic analysis software provides computational results consistent with staff observations. Good traffic level of service and low delays are computed for all movements approaching the intersection along Regional Drive. The Chenell Drive southbound approach operates with moderate delay averaging less than 30 seconds per vehicle. The Chenell Drive northbound approach, however, operates with computed long delays and at poor levels of service (average delays in excess of two minutes and 95th percentile queues nearing nine vehicles). Long delays are associated with the northbound left/through movement; the wide approach width allows right-turns to bypass queued left turns with low delays averaging about 10 seconds.

Rob Mack noted that current intersection traffic volumes continue to fall below the minimum thresholds for consideration of traffic signalization, a finding similarly reported by TOC in 2007. Current volumes are also below thresholds for multi-way stop control, although such control would be inappropriate (per city policy) on a major collector such as Regional Drive. Traffic growth along the corridor has increased substantially over the years and is a testament to the success of the Regional Drive project. Since some further corridor growth is anticipated, delays for turns from Chenell Drive may get progressively longer during peaks without more advanced intersection traffic control. One option is to widen the intersection for turn lanes and install traffic signals when and if traffic levels increase to minimum threshold values for signalization. Another option would be construction of a roundabout; this would provide the least delay to vehicles, would not need to be predicated by established traffic-volume thresholds, and can reduce the need for lane construction.

TOC concurred with staff findings that the current intersection operation appears safe. Potential growth in side-street traffic delays are a consideration and TOC supports the need to consider a future upgrade to the intersection (CIP 541). Of the two potential improvement options, TOC concurred that a roundabout would be more appropriate at this location. It was noted that both TOC and TPAC have in the past recommended CIP 541 as a 'medium priority' intersection improvement, with 'higher priorities' recommended for needed safety projects such as CIP 24 (Exit 16/Mountain Road roundabout) and CIP 31 (McKee Square improvements). CIP 541 is currently programmed in FY 2020-21 and reflects the realities of fiscal constraint as well as prioritization based on safety needs and public benefit. Staff will continue to monitor traffic operations at this intersection.

C. New Discussion and Action Items

1) Referral from City Council regarding a resident request to install a stop sign at the intersection of Governors Way and Peterson Circle to slow traffic along Governors Way (Council: 01/03/14).

<u>DISCUSSION / ACTIONS</u>: At issue is a resident request to install a STOP sign to slow traffic on Governors Way at Peterson Circle. Rob Mack visited the intersection and provided an overview of findings. The Governors Way/Peterson Circle intersection provides local access within a small cul-de-sac neighborhood northwest of Sewalls Falls Road near Beaver Meadow School. Traffic volumes are limited to neighborhood traffic (minimal through traffic) and are very light. Short street segments and some curved alignment promote low travel speed and sight lines at intersections are ample. The Governors Way/Peterson Circle intersection is configured as a plus-intersection, with Governors Way and the northeasterly section of Peterson Circle being the 'straight-through' street and the westerly and easterly legs of Peterson Circle being the stopping cross streets (with STOP signs). There are no reported crashes at this intersection back to the 2004 limit of the Police Department's crash database. Furthermore, there have been no prior-reported concerns regarding excessive traffic speed in the area.

Per city policy, installation of new stop signs are subject to an engineering study of need, and are not to be installed solely for purpose of 'speed control.' The two existing stop signs on Peterson circle are appropriate and required to assign right-of-way at the intersection; in this case Governors Way and the northeast leg of Peterson Circle have the indicated right-of way. Addition of stop signs to make a multi-way stop condition needs to meet Federally-established thresholds of traffic volume or crash history, neither of which would be met at this location.

TOC members concurred that the current intersection configuration and traffic control is reasonable for the neighborhood area and that the addition of new stop signs is neither justified nor appropriate. Regarding perception of excessive speeds in any local-only neighborhood area, it would not be atypical to expect a few inconsiderate drivers to drive carelessly and with apparent disregard of others, regardless of signage or other controls. This appropriately becomes an enforcement issue for which the Concord Police Department encourages descriptions of offending vehicles or times of day to assist in enforcement efforts.

D. Open Discussion Items

1)	Staff response to	miscellaneous inquiries	(refer to correspo	ondence in agenda packe	t).
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DISCUSSION / ACTIONS: None.

Respectfully submitted,

Robert J. Mack, PE, PTOE, Traffic Engineer
Chair, Traffic Operations Committee