COUNCIL COMMITTEE OF THE WHOLE

The Council Committee of the Whole Meeting was held on February 28, 2017 at 6:00 p.m., with Mr. Hare presiding in the absence of Council President Slavin. Members of Council present were Mr. Anderson (arrived at 6:13 p.m.), Mr. Neil, Mr. Lewis (departed at 7:31 p.m. and returned at 7:48 p.m.), Mr. Cole (arrived at 6:04 p.m.), Mr. Hosfelt, and Mr. Hutchison. Mr. Sudler was absent. Mayor Christiansen (arrived at 6:18 p.m.) was also present. Civilian members present for their Committee meetings were Mr. Keller and Mr. Shelton (*Safety Advisory and Transportation*). Ms. Arndt and Mr. Blakeman (*Utility*) were absent.

SAFETY ADVISORY AND TRANSPORTATION COMMITTEE

The Safety Advisory and Transportation Committee met with Councilman Hosfelt presiding.

AGENDA ADDITIONS/DELETIONS

Mr. Hutchison moved for approval of the agenda, seconded by Mr. Keller and unanimously carried.

Presentation by C. David Jamison - Speed Control Measures - Independence Boulevard

During the Regular City Council Meeting of May 9, 2016, Council considered Speed Control Measures - Independence Boulevard and approved the recommendation of the Delaware Department of Transportation (DelDOT) and the working group for the roundabout, as recommended by the Safety Advisory and Transportation Committee.

Mr. Hosfelt reminded members that discussions regarding traffic control measures for Independence Boulevard had begun during the Safety Advisory and Transportation Committee meeting of July 27, 2015. He noted that, over the course of time, there had been several meetings regarding this matter, and State Representative Sean Lynn and the Mayor's Office had been involved in trying to help the people in this neighborhood and along the streets due to safety, speeding, and other concerns. He noted that, after speaking with residents, it was felt strongly that Mr. C. David Jamison and Retired Colonel Tom Dix, who lives on Independence Boulevard, should be heard from to get their opinions. Mr. Hosfelt explained that because action on this project was previously approved by Council, no action could be taken during this meeting and the matter would have to go back to Council. Mr. Hosfelt advised that Mr. Jamison and Colonel Dix would each be given 15 minutes to speak, and then members would hear from any residents who wished to speak regarding this matter.

Mr. C. David Jamison, 423 Columbia Avenue, advised members that his son Kirk lives on Lamplighter Lane, and Mr. Jamison often visits him and goes to Capriotti's, Ace Hardware, etc. He stated that when he found out a year ago that traffic calming measures were proposed, he communicated and met with Mr. Mike Somers, City Transportation Planner and Traffic Calming Project Manager, DelDOT; however, they agreed to disagree on this issue. Mr. Jamison explained that he had seen Representative Sean Lynn's campaign flyers in September that promised proposed traffic calming measures. He advised that on three (3) separate occasions he had asked Mr. Lynn to meet to talk about the project; however, Mr. Lynn was committed to the working group's plan,

so there was no need to meet, and they agreed to disagree. Mr. Jamison explained that he then researched the minutes of the City Council meeting of May 9, 2016 and decided that he would have to prepare a report evaluating the proposed traffic calming measures. He stated his belief that members had received a final copy of his report on January 27, 2017. *(City Clerk's Office Note: A report entitled "Independence Boulevard Traffic Calming Measures Report" **(Attachment #1**) was received via email from Mr. Jamison on January 23, 2017; the Mayor and members of City Council were copied on his email, and it was forwarded to the civilian members of the Safety Advisory and Transportation Committee on January 24, 2017.)*

Mr. Jamison reviewed a presentation entitled "Independence Boulevard Traffic Calming Measures Report." Following his presentation, he noted that he had presented his message using common sense and hoped that members heard it using common sense. Mr. Jamison expressed his hope that, at the end of the day, he could say that everyone agreed to agree.

Mr. Anderson asked if any money had already been spent on the project and, if so, how much. He also noted that upon reviewing the petitions of those opposed, none of those who signed were on Independence Boulevard. Mr. Anderson stated that he had noticed signatures from Green Blade Drive and other areas, but none were in the impact area. He indicated that an impact area survey is the responsibility of DelDOT, not the City, and asked if DelDOT had done the survey. Responding, Mr. Jamison stated that the survey was the result of flyers by people who were opposed to the project and was not an official survey; however, he would more than welcome an official one.

Mr. Anderson stated that the official survey was supposed to have been mailed out by DelDOT and asked if Mr. Jamison knew the results from it. In response, Mr. Jamison stated that he was surprised that no one had brought this up at the meeting last May and questioned why the project was approved without the votes. He expressed his belief that Colonel Dix would verify that flyers were given out on Independence Boulevard, and explained that he did not know why they did not respond to it, but he assured members that they were delivered there. Mr. Jamison reiterated that this was not an official survey, which he would more than welcome, and was sure that anyone against the project would also welcome it. He stated that he was sure that the result would be the same.

Mr. Hosfelt indicated that DelDOT had recently offered to do an official survey and there had been some conversation between himself and Mr. Lynn to get on the same page to make that happen.

Mr. Anderson stated that there had been a Bicentennial Civic Association meeting where this was a hot topic, even though that area was broader than the probable impact area. He asked what the result of that meeting was. Responding, Mr. Jamison indicated that he was not there. Mr. Hosfelt informed members that, at the latest meeting, residents had basically four (4) different opinions, as follows: 1) leave it as is, with the traffic roundabout at Independence Boulevard and Colony Drive, which was the only thing that had been approved at this point in time; 2) do a traffic realignment, which was originally thought to be part of the motion but was not included the way the motion was worded; 3) do nothing at all; or 4) go with a digital speed sign. He indicated that the meeting was well attended and the majority wanted to disregard the traffic roundabout at Colony Drive and instead go with the traffic realignment along Independence Boulevard in the area of the park. He noted that this was the opinion of the majority of the residents, but it had been close.

Mr. Hare noted that there had been some speeding issues on Wyoming Avenue, which has approximately 30 residents, and is approximately the same length as Independence Boulevard, which has approximately 13 residents. He stated that those in the Woodbrook area had been looking at stop signs but proposed a roundabout for that area in lieu of stop signs, which Mr. Hare indicated was not a bad idea. Mr. Hare asked, if the roundabout does not go forward on Independence Boulevard, that the money not be given to street repairs since it might be used to put a roundabout on Wyoming Avenue. Responding, Mr. Jamison stated that he was unsure what State representative district the Wyoming Avenue area would fall under. Mr. Hare noted that Senator Brian Bushweller and Representative Sean Lynn both represent this area.

Mr. Hutchison commented that a radar speed sign had been placed on North State Street between Walker Road and Division Street. He stated that he traveled that road every day during the early morning, day, and evening and noted the behavior of people driving there had changed. Mr. Jamison noted that people do react to these signs.

Mr. Keller stated that he agreed with Mr. Hutchison's remarks, noting that the radar speed sign would be an excellent compromise.

Mr. Lewis asked how much work DelDOT had already started or how much had been spent on this project. Responding, Mr. Jamison stated that he had been trying to get a set of plans. He indicated that he did not know if the project was on hold and to date he had only received conceptual plans.

Mr. Lewis expressed his understanding that work had started on the project since it had been approved. Mr. Hosfelt explained that a representative from DelDOT would be speaking later in the meeting.

Mr. Jamison commended Mr. Will Garfinkel, noting that Mr. Garfinkel was running as a candidate for City Council in the First District and gave time and effort to this project. He also stated his desire to salute all of the members of Council, explaining that it was not a high-paying job but members were giving their time and efforts to the City of Dover, and he appreciated and respected them.

Mr. Jamison commented that Mr. Hutchison had decided not to run for re-election in the First District and noted that he had attended Dover High School with Mr. Hutchison. He stated that Mr. Hutchison was a man who stood up for what he believed in and would not back down. Mr. Jamison informed members that he, himself, had gotten an engineering degree and went to work for DelDOT as a highway engineer and then into private practice, noting that his focus had always been the safety and welfare of the traveling public. He advised that Mr. Hutchison became Chief of Police, Mayor, and Councilman, and his whole life had been dedicated to the safety and welfare of the citizens of Dover. Mr. Jamison asked that those present join him in showing appreciation to Mr. Hutchison and acknowledging all that he had done. Mr. Anderson noted that Mr. Hutchison had also served in the Delaware Army National Guard.

Retired Colonel Thomas Dix, 664 Independence Boulevard, reviewed correspondence and attachments dated February 27, 2017, addressed to the Office of the Mayor and Council ***(Attachment #2)***. He referred to the comment in his letter that the DelDOT Traffic Calming Design

Manual indicates that radar speed signs "Can cause speeds to be reduced within a community," and explained that "can" is a funny word that means able or possible; however, a radar speed sign had been on Bicentennial Boulevard since June and did not work. Colonel Dix stated that Mr. Doug Stamm, who lives right by the sign, had stated that it was ineffective.

Colonel Dix expressed skepticism that substituting two (2) yellow lines and one (1) blinking radar light for proven traffic calming measures would solve all of the problems, stating that he felt that he had been trampled. He pointed out that there are 13 people who have an Independence Boulevard address, and over 250 people in Bicentennial Village. Colonel Dix advised that people who live on the end of a cul-de-sac and are coming off of a dead-end street were telling him what 5,000 cars are like going in front of his house. He indicated that when he moved there in 1999, he did not have 5,000 cars in front of his house, but he has them now. Colonel Dix questioned if this is how people should be treated, stating that it is not right to punish a minority group. Colonel Dix added that a single radar speed sign only works in one (1) direction and asked if there would be another one (1) for traffic going the other way.

Colonel Dix noted that Mr. Jamison had mentioned that yellow center line stripes can reduce speeds by between two (2) mph and seven (7) mph, and emphasized that "can" indicates that this is possible but not highly probable. He noted that this had been proven since lines were painted and he expected speeds to reduce; however, they increased from 29.1 mph to 29.4 mph. Colonel Dix indicated that, in talking about the number of accidents on Independence Boulevard, Mr. Jamison had shown a site and mentioned an accident in 2013 when a driver hit the entrance sign. Colonel Dix advised that he knew that someone hit the marquee in 2014 and it was finally fixed in 2015, and he did not know where Mr. Jamison got his data from. Colonel Dix indicated that Captain David Spicer, Dover Police Department, had previously stated that there were 10 accidents in 2015 and that the year before there were only three (3). Colonel Dix expressed his opinion that this street was going to hell in a hand basket, and he thanked Captain Spicer for bringing this to everyone's attention.

Colonel Dix stated that Mr. Jamison had commented about a speed problem and referenced an average speed of 29 mph, as if this was okay. Colonel Dix indicated that this was not okay when the recent study showed that 9.2% were above the ticketing speed of 35 mph. He advised that averages do not tell anything and noted that, by simple math, an average speed of 29.1 mph can be the average between 34.1 and 21.1 mph. Colonel Dix advised that those who are traveling 25.1 mph are the ones who want to obey the speed limit, and those who are traveling just below 35 mph do not want a ticket. He estimated that 2% - 3% of the drivers go as fast as they can, noting that in the latest survey in February, three (3) cars were clocked at over 70 mph. Colonel Dix asked if he was living on a raceway and was supposed to put up with this. He stated that 250 people were telling 13 people that they do not have a problem and they begged to differ. Colonel Dix reiterated that he was a minority and did not want to be treated as a minority.

Colonel Dix informed members that he had given over two (2) years of his life working on this project. He stated that when he started working on this project he recommended speed cushions and blocking the road at Redner's. He indicated that he had listened to the best that Delaware could give as far as traffic calming. Colonel Dix noted that DelDOT has a whole section that does traffic calming that indicated that a roundabout and realigned intersection were needed. He stated that he

was not pumping anything and had just gone along with the people who were supposed to know what they are talking about, and noted that Mr. Garfinkel and Mr. Stamm had gone along with them too. Colonel Dix indicated that he was now being tortured by 250 people who do not live on Independence Boulevard.

Mr. Neil commented that in theater the two (2) protagonists are the most important people and stated his belief that what Mr. Jamison and Colonel Dix had done was brilliant and the type of thing that members need to hear from citizens. He indicated that he would award them a tie; however, that would be the easy way out, and a decision would have to be made. Mr. Neil thanked them for their enlightening presentations and the time and effort they put into this matter, noting that they would make members' job tougher rather than easier.

Mr. Anderson, noting that Colonel Dix had stated that almost 10% of the traffic was above 35 mph, asked if the median speed was known. In response, Colonel Dix provided a report for Mr. Anderson to review.

Mr. Lewis asked why the people who were now opposed to the project were not present to voice their opposition when it was approved by Council. Responding, Mr. Hosfelt explained that, from what he had heard, there was some confusion about whether or not those people were invited to meetings or they had not felt that they were notified properly. Mr. Lewis indicated that the meetings are publicized.

Mr. Hutchison thanked Colonel Dix for the work he had done, noting that at the end of the day everyone was here for one (1) reason, public safety. He stated that he had 25 years in law enforcement, knows about public safety, rides up and down State Street every day, and radar systems and speed signs work. Mr. Hutchison advised that putting radar systems on either side and monitoring and reviewing this area would cost approximately $5,000, which would be a lot cheaper. He advised that if the radar systems did not work, there is a traffic study that says that the roundabout would be another alternative, and noted that the big project should not be done first. Mr. Hutchison informed members that he could not guarantee that the radar speed signs would work; however, he guaranteed that the traffic on State Street changed because of those signs. He stated that he was asking Colonel Dix and everyone else in the community to consider that if the radar signs are put up and they work, everyone would win. Mr. Hutchison explained that he was not saying anything against the study and roundabout because this could be plan B if the signs do not work.

Colonel Dix commented that a study had been done, noting that a flashing radar light was put up on June 2nd on Bicentennial Boulevard. He reviewed an email regarding the flashing radar sign from Mr. Stamm (Attachment #2).

Mr. Hutchison asked if signs were put both ways on Bicentennial Boulevard, and Colonel Dix advised that they were not. Mr. Hutchison noted that North State Street had signs in both directions.

Mr. Lewis advised that he was not an expert on radar signs but had seen people speed right by them and not be a deterred at all. He indicated that they are not 100% effective.

Mr. Keller explained that he had also been up and down State Street daily and had seen a definite decrease, noting that there would always be scofflaws no matter what the street or traffic control measures are. He questioned what the City had to lose with the $5,000 outlay described by Mr. Hutchison and noted that if it did not work, plan B could be used. Mr. Keller advised that he agreed 100% with this approach.

Mr. Mike Somers, City Transportation Planner and Traffic Calming Project Manager, DelDOT, referred to Mr. Anderson's questions regarding why a DelDOT survey was not done for the entire community. He explained that this was not a DelDOT project but a City of Dover project, and DelDOT was a support arm. Mr. Somers advised that DelDOT will give the City what is needed, do what the City asks them to do, and do the design work; however, in a municipality, the municipality governs the process. He explained that the option in Dover was whether the group wanted DelDOT to ballot the community or whether they wanted to go through Council and the group decided to take it to Council. Mr. Somers pointed out that DelDOT had not forgotten to do a survey, this was the way it was chosen to be done in this case. Noting that it was mentioned that DelDOT had offered to do a survey now, he explained that this was because of his concern that there was a disconnect. Mr. Somers indicated that there was confusion, one (1) group was saying that they wanted it, another group saying that they did not, and the votes were not all that far apart, so he made the offer to do a survey.

In regard to the cost of the project, Mr. Somers advised that additional costs beyond what had been mentioned were not anticipated. In terms of the status, he indicated that everything was mostly done and the project was in the process of being passed around the department for review. Mr. Somers advised that, even though there was no impact outside of the right-of-way and there should not be any impact off the asphalt, the project must still be passed by the environmental group, etc., according to the rules. He noted that if it comes back stating that Americans with Disabilities Act (ADA) or other adjustments are needed, this will have to be done, but the plans were finished for the most part. Mr. Somers explained that the plans were not being handed out because they were not finished, and they do not hand out working draft plans. He stated that once plans are complete, they will be public record, and anybody who wants to see them would be more than welcome to do so.

Mr. Anderson questioned how much had been invested in the project so far. In response, Mr. Somers stated that he had not brought those numbers with him but estimated a range of $25,000 to $30,000, noting that it was mostly consultant money.

Mr. Anderson indicated that he had looked at the report that Colonel Dix provided to him for review, and noted that approximately 85% of the traffic was above the posted speed limit and approximately 45% was above 30 mph. He asked if this was within normal parameters. Responding, Mr. Somers indicated that this was getting into speculation; however, it was not uncommon to see those kinds of numbers on a fairly straight road like this. He noted that, other than the one (1) end where all of the houses were directly on the road, most of rest of the road was pretty open and there was nobody living on it directly. Mr. Somers advised that speed limits are set for a reason, they are not supposed to be suggestions, and police try to enforce a specific speed because those speeds have been designated as safe speeds for a particular route.

For clarification, Mr. Lewis asked what stage DelDOT was at as far as work being done on the project, and if it was in the early stages of drafting, diagrams, and blueprints. In response, Mr. Somers stated that for the most part the plans were finished but were being passed around for in-house review. He explained that a contract had been lined up with a commitment to include this project on it, and the money had been allocated and approved, so DelDOT was ready to move.

Mr. Lewis asked if the money had been disseminated. Responding, Mr. Somers stated that the money had been contributed by the legislators, transferred to the programs, and was ready to go. He pointed out that it is Community Transportation Funding (CTF), which is an allocation of funds that each legislator receives annually for projects in their district. Mr. Somers noted that the City also receives money directly without the legislators' involvement, and Mr. Anderson advised that it was Municipal Street Aid. Mr. Somers stated that these funds are supposed to be used within the City. Referring to Mr. Hare's comments about using the money somewhere else, Mr. Somers indicated that this was not necessarily the case, noting that he would not get into the legislators' business about this.

In response to Mr. Lewis about whether the funds could be used elsewhere, Mr. Somers indicated that the legislators could put it somewhere else, but it would have to be a similar project. He noted that the funding was there and if it is not grabbed when it is available, it may or may not be available next time. Mr. Somers reiterated that he would not presume to get involved in the legislators' business about this.

Mr. Neil asked, if this matter was put on hold for now and had to be brought back at a later time, whether the City would lose any of the plans or if anything would change regarding what had already been done. In response, Mr. Somers stated that a month-and-a-half ago, when he was told that there were questions, he discussed this in-house with his supervisor. He stated that, regardless of what comes out of the process, DelDOT will finish the plans, and if the City decides not to move forward, DelDOT will still have the plans. He cautioned that the plans would have to be reviewed to make sure that nothing has changed with the laws and regulations if this moves forward in two (2) to five (5) years; however, they probably would not have to be changed much. Mr. Somers noted that the money was another issue, and it may or may not be there. He indicated that the plans would be recorded, archived, and set aside until they are called upon.

Mr. Shelton asked how long the money would be allocated for. Responding, Mr. Somers estimated that funds would be in place for this project for a maximum of four (4) years; however, he explained that he did not know what that would mean if the funds were moved out of this project into something else. He indicated that he thought that the legislators have to use their money annually within at least a four-year period, after which it would no longer be available.

Mr. Shelton asked if enough money had been allocated for a roundabout if they chose, or for the radar speed sign. Responding, Mr. Hosfelt stated that money was allocated for both. *(City Clerk's Office Note: Subsequent to the meeting, Mr. Hosfelt advised the City Clerk's Office that funds had been allocated for both the roundabout and the traffic realignment; however, there was no mention of an allocation for radar speed signs.)*

Mr. Shelton stated that he agreed with the plan to stay with the radar speed sign; however, he noted that he drives on Mifflin Road every day, which has a roundabout, and had seen how it stops the flow of traffic, which he stated was not a bad idea. He indicated that he liked Mr. Hutchison's comments about looking at the radar speed sign initially and moving on to the next thing if that does not work.

Mr. Keller asked how much of the $77,000 outlay the $25,000 would entail. Responding, Mr. Somers explained that the design money is part of DelDOT's in-house budget.

Mr. Hosfelt explained that this project would not cost the City. Mr. Somers reiterated that the funds would not come out of the City's budget but would be CTF money. He indicated that the City would have nothing to lose financially by doing the project, it was a matter of whether the City has an interest in doing it.

Mr. Lewis stated that he was baffled because testimony had been heard by Colonel Dix that they had already put up a radar sign in the community and it was ineffective, so he did not understand why they would want to spend money to do the same thing again. Responding, Mr. Hare stated that the sign had been put up on Bicentennial Boulevard, rather than Independence Boulevard.

Mr. Hosfelt asked Mr. Somers if, in his opinion, traffic calming was needed on Independence Boulevard. In response, Mr. Somers expressed his belief that there was a concern and that the community certainly believed it. He noted that, at a community meeting held a few days prior, even the people who did not necessarily love the notion of a roundabout were collectively not opposed to doing something. Mr. Somers stated that this had been just a straw vote at an individual meeting; however, even the people who did not want to do anything felt there was a concern.

Mr. Hosfelt asked if Mr. Somers thought that it was a matter of both things working together or if one (1) approach or the other should be tried. In response, Mr. Somers advised that each measure, whether a stop sign, roundabout, or realigned intersection, would have an area of influence that is generally 250 to 300 feet, depending on the measure, noting that this area is not always the same everywhere. He explained that a combination of measures breaks speeding more effectively than having one (1) or two (2). Mr. Somers indicated that when most rational people are coming out of a roundabout, and know there is a stop sign 300 or 400 feet down the road, they will not greatly increase their speed; however, he noted that people are not always rational. He advised that if people know there is something else coming they will stop trying to make up time, because they know they will not be able to do so.

Mr. Hosfelt thanked Mr. Somers, noting that he had been available anytime he was asked to come out in the evenings or to attend different community meetings and had answered questions. He expressed appreciation for Mr. Somers' help with this project. Mr. Somers invited those who needed more information to contact him directly.

Dr. Dina Vendetti, Principal, St. John's Lutheran School, 1156 Walker Road, stated that she was representing the parents of students at Saint John's and noted that the school uses Continental Park for several activities. She explained that their property does not have any playing fields on it, so this is the closest field they can use. Dr. Vendetti advised that they sometimes use the park for physical

education classes, but their biggest use of the park is a two-day field day event where several parents participate. She informed members that she put this matter out to parents and was unsure how concerned they would be, and the result was three (3) pages of a petition. Dr. Vendetti explained that their concern was about parking, noting that she had heard two (2) reports of what the area would look like after the project was complete. She stated that if parking was eliminated on the Continental Park side of the street, this would be a problem for them in using the park and for their parents to be able to participate in the activities of their kids. Dr. Vendetti stated that she understood that there was parking on the other side of the street; however, little kids were being discussed. She indicated that parents were not thrilled about the idea of walking the children across the street, and it was much more convenient and much easier for them to pull up alongside the park and be part of the activity. Dr. Vendetti advised that most of them do not live in that neighborhood so it is not really their fight, but their concern was the use of the park and the availability of parking near the park. She asked, whichever route the group decided to go, that members be aware of this and save as many parking places as possible.

Ms. Carolyn Courtney, 24 Lamplighter Lane informed members that she was native to Dover and chose and bought her house in May 1996 because it was in the center of Dover. She indicated that she had two (2) children at the time and it was close to commerce, her parents, and her family. Ms. Courtney stated that at night she has to listen to cars racing up and down the roads, and that she can hear the cars on Walker Road, and the train from her house. She advised that when you live in the City, these are some of the things you deal with; however, it had been a blessing to have a nice, wide street in the neighborhood that had been a place for her and her children to walk, ride bicycles, or rollerblade. Ms. Courtney stated that the occasional yahoo who drives down Independence Boulevard at full speed and runs stop signs would do this on any street, and it was not up to the City to fix this with a traffic circle by taking parking away from a park.

Ms. Courtney noted that Dr. Vendetti had stated that her school uses the park during the day. Ms. Courtney indicated that she had been there at night and seen teens use it for practice and pick-up games for those who show up and play football. She advised that taking the parking and narrowing that section of Independence Boulevard in front of Continental Drive would be an injustice to everyone who uses and appreciates it. Ms. Courtney stated that jumping to traffic circles would be way too fast, noting that there is not that big of a problem on her road. She suggested trying other calming measures and noted that when she sees the blinking signs on Wyoming Avenue and State Street, she looks down, checks herself, and slows down. Ms. Courtney explained that the striping on Independence Boulevard had happened while she was on vacation and at first she thought it was a ridiculous waste of money; however, in the month since, she thought that the striping had helped tremendously. She expressed her belief that the speed limit signs would help on Independence Boulevard, rather than jumping to the measures proposed by Colonel Dix and the committee of three (3) or four (4) people supposedly representing the entire neighborhood. Ms. Courtney advised that, in addition to Bicentennial, the neighborhood included the Greens Association. She explained that these were the townhouses on the west side of Independence Boulevard who were never included in any of this, and she stated that it was an injustice to let four (4) or five (5) people speak for everyone.

Noting that Ms. Courtney had stated that there were only three (3) or four (4) people on this committee, Mr. Lewis asked if there was public notice put out that the committee was being formed and if Ms. Courtney had been aware that this was going on. Responding, Ms. Courtney stated that she knew nothing about it in the beginning, had seen it one (1) time on the Council agenda, and it was then gone and she heard it was a done deal. She indicated that she had received no mailing, flyer, or notice.

Mr. Lewis stated his understanding that the homeowners' association has a Facebook page and asked if Ms. Courtney was privy to this or had been on this site. In response, Ms. Courtney advised that, since attending one (1) of the meetings, she had joined the Bicentennial Association; however, she noted that she is on the west side of Independence Boulevard and belongs to the Greens Association. She stated that these members were not included and did not know anything about it.

Mr. Jim Stewart, 742 Bicentennial Boulevard, stated that he lives at the corner of Colony Drive and Bicentennial Boulevard, which is about the equivalent of being at the corner of Dover Downs at the racetrack as they are whipping around and can hear them at night. He advised that there are 327 households in the neighborhood, including Green Blade Drive and Lamplighter Lane, and they had yet to have 10% of the households represented at any of the meetings. Mr. Stewart stated that there were 897,934 residents in the State of Delaware on the 2010 census, the estimate as of July 1, 2016 was 952,065, and he projected that the State would probably be at 1,000,000 in 2020. Mr. Stewart indicated that the cost of just the traffic circle would be $0.14 per resident, and just doing the narrowing would be $0.06 per resident. When going to the larger population, he indicated that the cost of the traffic circle would drop down to $0.13, and the narrowing drops down to such an infinitesimal percent of a penny that he could probably pay for everybody in the room and still have change left over from the one (1) penny.

Mr. Stewart indicated that he was in the middle when he attended the meetings and compared this to living between the Hatfields and the McCoys, with bricks flying in both directions. He advised that there was a big group of those who were curious about what was going on and why, and there had obviously been some miscommunication. Mr. Stewart noted that some personalities had gotten involved, and there had been a lot of confusion. He advised that he had raised a concern at the last meeting about the fact that kids have to cross Independence Boulevard to get to the school bus stop there and this had not been mentioned. Mr. Stewart commented that one of his neighbors, in irate frustration, had questioned why anything would be done since no one had been hit yet. He stated that the lady who lives on that corner and has kids at her bus stop or in her yard will have to deal with anybody being injured there, and she had commented that she was a retired public health nurse and believed in preventative measures. Mr. Stewart expressed the need to pay attention to the school kids.

Mr. Stewart advised that many options had been taken away, stating that a four-way stop cannot be used because it does not meet DelDOT standards at Independence Boulevard and Colony Drive, speed bumps or cushions cannot be used due to the Fire Department and other groups, and there were a couple of other items he could not remember. He indicated that he had to call an ambulance to his house once and did not want speed bumps to slow down those coming to him when they are really

needed. He stated that it would cost $10,000, not $5,000, for a radar sign, and every time that money is chipped away at, there would be less money and a need to hunt for it somewhere else.

Mr. Stewart stated that members have a good share of responsibility for the City and City taxpayers and if something happened to somebody on that street, particularly a school kid, their parents would hire an attorney who would go hunting for deep pockets. He noted that there was a thorough and deep public record that the City was looking at this issue. Mr. Stewart questioned what the liability would become if the City did not try to do something, stating that it would be far higher than anything that had been talked about this evening.

Mr. Stewart indicated that the group met last on Monday, it was a vibrant meeting, and each time they voted, the votes were roughly one-third, one-third, and one-third. He advised that when they started raising the issue of the school kids, which was the prime issue, only two (2) voted against it, one (1) person that he did not know and another lady who lives well insulated from Independence Boulevard and does not see the problem every day. Mr. Stewart explained that they came to a reasonable consensus, which was a compromise, and there was some fussing and grumbling, but he thought the group seemed to be coming to a conclusion that they would be willing to try the traffic narrowing. He stated that some of those in the middle were afraid of what they had to lose, and he explained that school kids were what there was to lose if members were not careful. Mr. Stewart advised that they could bring pictures in of these kids to show to members and questioned, if it was too dangerous for little kids to cross the street for a couple of festival events, then what was it for the kids who have to do that every day during the school year. He indicated that they were just as much at risk and just as valuable, and $0.14 or $0.13 was being discussed. Mr. Stewart estimated that basically $0.20 of the first tax dollar spent on the day that this money was allocated would go to this project. He commented that, with all respect to Mr. Hare, the budget vultures were out there and had other projects, and Mr. Stewart did not blame them. Mr. Stewart stated that he had spent 26 years in State government and members could not assume that this money would be there a year or two (2) from now because loose money lying around is low-hanging fruit in State government and they come after it first.

Mr. Eric Frankl, 44 Freedom Drive, asked if there was a device that would not just flash the driver's speed but also take a picture of a license plate and the speed, so that the City could get money from them. Responding, Mr. Hosfelt explained that, several years ago when he was serving as Chief of Police, the City had tried to work with the legislators for Dover to become a test for a program similar to red light or speed cameras. He stated that it never gained any traction at that point from any of the legislators, and that is why the City did not have this program.

Mrs. Rhonda Lewis, 27 Liberty Drive, advised that there had been different proposals, including a circle coming from Route 8 going toward Walker Road, a three-way stop at Continental Boulevard, narrowing, and another three-way stop at Liberty Drive. She asked what would happen when people are ticked off when they go through this long course, reach the block of houses where people are noticing the speed problem, and speed toward Walker Road. Noting that Mr. Somers had advised that these measures reduce speeds within a radius, Mrs. Lewis asked what the point would be and what more there would be to do when drivers get through all of this, are aggravated, and speed to Walker Road in front of the houses of Colonel Dix and others. She noted that she sees people slowly

running through the stop signs all the time, stating that she did not know what more there was to do except for law enforcement.

Representative Sean Lynn, 224 Columbia Avenue, stated that he was present to speak in favor of the project which was brought to him by the City. He explained that the City asked him to facilitate public meetings to investigate this issue and they spent about a year investigating the issue. Mr. Lynn advised that they had the finest experts at DelDOT in traffic calming review this project with a private engineer for more than one (1) year and then brought that project to this Committee, who voted on it. He explained that notice was properly given to residents of Bicentennial Village and the other associated neighborhoods vis-a-vis the publication of Council agendas. Mr. Lynn indicated that when this issue was brought before the Committee, everyone in the City of Dover had access to the agendas and, regardless of what people's positions were, Council and this Committee voted on it.

Mr. Lynn stated that if you go to the doctor and the doctor tells you that you need your appendix removed, you don't say to the doctor that you would rather have your gall bladder removed. He indicated that it is not a buffet, and the experts had opined and rendered an opinion that two (2) things were necessary, a realigned intersection and a roundabout. Mr. Lynn advised that the experts at DelDOT had examined the issue and told members what the solution was and that this was what they needed to listen to. He informed members that he would not fund any alternative other than what the DelDOT engineers had proposed and, unless Council funds what the engineers had proposed, he would not give the CTF dollars to do it. Mr. Lynn stated that if something else was wanted, the City would have to pay for it because the engineers had spoken. He advised that if you return to the doctor and say that you want your gall bladder out and they reiterate that you have appendicitis, you do not get to choose. Mr. Lynn explained that they had asked the finest minds in the State to examine this and they had rendered their opinions. He indicated that this issue would only get worse as time progresses, noting that cost of the project would only increase and, once the bypass is completed, there would be more traffic on this road. Mr. Lynn stated that Captain David Spicer had stated what the traffic patterns were on this road, and people who are against the project had asserted that the Dover Police Department was lying about what the traffic patterns were. He indicated that this was unconscionable. Mr. Lynn stated that, as the City grows, the situation will become worse. For these reasons, he advised that Council needed to stick with its original position and allow the project to go through unabated.

Mr. Hosfelt advised that when the original motion was made, through no one’s fault and due to a wording issue, the roundabout was the only traffic calming measure that was approved. He asked, if this issue goes back to Council and the other part of the project is not approved, whether Mr. Lynn was saying the money would not be there and if he wanted it all or nothing. In response, Mr. Lynn stated that the money had already been expended since it was not clear to DelDOT that Council made an error and only approved one (1) of the two (2) traffic calming measures. He advised that the dollars had already been allocated, they had already funded the project, and work was already underway. Mr. Lynn stated that he did not think it reasonable to only fund half of the solution, so they were not going to pay for half of an appendectomy but would pay for the entire appendectomy. Mr. Lynn indicated that if the experts say that both are needed, they would fund both, but would not allow funding only half through political expediency. He stated that the experts had all found that

a realigned intersection and a roundabout were needed to address the issue, and they would fund both or nothing.

Mr. Lewis stated his understanding that the other part of the project would be the realignment, and this was confirmed by Mr. Hosfelt.

Mr. Anderson asked if anyone could answer the question about parking for Continental Park. Responding, Mr. Hosfelt indicated that, at this time, the only information available were the opinions of Mr. Jamison and Colonel Dix. Mr. Anderson advised that a plan was being looked at for that park and that it would be appreciated if they tried to maximize parking in that area. Otherwise, he stated that he thought the choice was pretty clear and that the City needed to accept the money and address the issue.

Mr. Hosfelt stated that there was no action to be taken by the Committee at this point.

Mr. Cole moved for adjournment of the Safety Advisory and Transportation Committee meeting, seconded by Mr. Hutchison and unanimously carried.

Meeting adjourned at 7:29 p.m.

UTILITY COMMITTEE

The Utility Committee meeting was held with Chairman Cole presiding.

AGENDA ADDITIONS/DELETIONS
Mr. Hutchison moved for approval of the agenda, seconded by Mr. Hosfelt and unanimously carried.

Street and Alley Survey Update
Mrs. Sharon Duca, Director of Public Works, reviewed a presentation entitled "Street & Alley Survey," dated February 13, 2017.

Referring to page 4, Pavement Distresses, Mr. Anderson questioned the meaning of alligator cracking. Responding, Mrs. Duca explained that alligator cracking is distressed pavement that looks like an alligator or crocodile's skin.

In reference to page 15, Capital Funding Sources, Mayor Christiansen asked if Community Transportation Fund (CTF) referred to designated municipal street aid monies. Responding, Mrs. Duca explained that Municipal Street Aid actually goes into the General Fund, and Public Works pays for projects through the General Fund.

Mr. Neil asked how long it would be before a roadway has problems and needs to be repaired again after it has been brought down to the bottom, and recreated. Responding, Mrs. Duca explained that usually there is not a need to go down to the base for an entire road section, and base repairs are

typically needed only for sporadic sections. She compared this to a roof replacement, where there may be a couple of pieces of plywood that need replacing, rather than an entire roof. Mrs. Duca expressed the overall goal that the roads would remain in decent condition for at least 20 years, if the City was on schedule. She noted that the City has a storm sewer system, a sanitary sewer system, and a water system that are all within the roadway as well. Mrs. Duca advised that, in planning projects, staff tries to assess the water system and video the storm and sanitary sewer system when they identify the roads that need to be addressed. She explained that this is done to try to make sure that they are working on a total project, so that there are not scenarios of failure with the utilities that destroy the investment in the road.

Mr. Anderson advised that he noticed in the report that several streets in the Fourth District needed repair and that Bicentennial Boulevard had a lot of issues as well. He asked what percentage of the City's streets have had repaving or rehabilitation within the last 20 years. Mr. Anderson noted that he was curious what percentage of streets have had the 20-year cycle applied to them because there were streets that had grass growing in them, pieces of the street falling apart, and some that had not been touched in so long that staff was unable to find records. He stated that he did not expect that information right now but in the near future, perhaps through an email later in the week.

Responding to Mr. Anderson, Mrs. Duca stated that staff could work on providing the percentage of the overall street system that actually gets addressed each year. She stated that she was unsure that she could obtain decent data in terms of going back 20 years; however, she agreed that roads were not being addressed at this frequency. Mrs. Duca advised that staff was addressing roads that do not have base to them in certain areas, and the City had to do some of the re-laying. She explained that in some cases it is found that there are two (2) inches of asphalt on top of dirt, so these streets had obviously not been addressed since they were built.

Mr. Hutchison asked how much was spent on routine maintenance per year on average over the last five (5) years. Responding, Mrs. Duca stated that there was approximately $10,000 for paving and $10,000 for concrete work in the Streets Division budget. Mr. Hutchison asked if this was the average amount that was spent on improvements and maintenance in the City over the last five (5) years and Mrs. Duca confirmed that it was. She indicated that she had made certain requests to the City Manager for improvements in that area and there were certain expenses that the City was not properly addressing. Mrs. Duca explained that there were a lot of issues with the concrete system. For example, she stated that the City had started to implement painting work on roadways to improve marking to control speeding, which involved an epoxy that staff was not able to do in-house. She noted that this work had not been budgeted in the past and would amount to an extra $5,000 per year, for a program that had been budgeted for years at only around the $15,000 mark.

Mr. Hutchison asked if there was a master plan for the future. He stated that, when looking at the numbers discussed, the amount of money that the City needed to apply to address maintenance issues and the total number of miles in the City, a clear amount of money must be set aside every year so that the staff and workforce can address the issues. Mr. Hutchison stated that he thought it was obvious that the City was running behind and needed a plan to catch up.

In response to Mr. Hutchison, Mrs. Duca indicated that the master plan for the future was tied in with another project that Mr. Bob LaFountain, Civil Engineer I, was working on. She noted that, in order for staff to make a proper recommendation to Council as to what infrastructure investments are needed, there was a need to have a firm handle on what the City's assets and infrastructure are. Mrs. Duca advised that line painting is part of the same line item as signs, which all relate to the safety factor of the roadway system. She indicated that, in conjunction with road rating, Mr. LaFountain was working on an inventory of signs, including how many and what kind of signs the City has and what the replacement issues are, so that more sound budget requests could be made based on these components, just as much as they are on pavement and other infrastructure components.

Mr. Hutchison asked, if Mrs. Duca could wave a magic wand, how much was needed per year in order for the City to be caught up. Responding, Mrs. Duca indicated that, based on her current knowledge, she could easily see the City increasing just the concrete budget from $10,000 to $50,000 and still not have all the issues resolved.

Mr. Neil asked if it was planned to include updated street signs in the forthcoming budget. For clarification, Mrs. Duca asked if Mr. Neil was referring to replacing faded streets signs. Mr. Neil indicated that he was referring to faded signs, as well as periodically replacing street signs with the modern street signs that had been adopted. Responding, Mrs. Duca stated that there is a line item for street signs and painting, which is done at a certain percentage when things are very poor. She noted that when staff completes the actual inventory she could give a more definitive number. Mrs. Duca explained that it would then be known, for example, that there are 10,000 signs that should be replaced at 10% per year.

Mr. Hosfelt asked if striping is automatically included in the price when a paving or resurfacing job is done. He noted, for example, that Independence Boulevard was not re-striped when it was repaved initially, and this was brought up by residents. He stated that when the stripes were put down, this had an impact for a while on speeds. In response, Mrs. Duca stated that striping is extra and most City streets do not have stripes on them. She indicated that much of the roads with striping are Delaware Department of Transportation (DelDOT) roads.

Mr. Hosfelt recalled that the City Manager had indicated that Wyoming Avenue was scheduled for repaving in the spring of 2017. He stated that when this is redone, striping, including possibly a double yellow line down the center and shoulder striping, would definitely help with the speed issues on the road. Mr. Hosfelt noted that, looking at this in terms of what needs to be done to these streets in the future would help the City in the long run from a safety point of view. In response, Mrs. Duca stated that she agreed, and that when items are put out to bid, looking at roadway classifications, such as whether roads are collectors or purely residential, would help and would create a difference in what is needed.

Mr. Cole asked how long the line items Mrs. Duca mentioned had been set at $10,000. Responding, Mrs. Duca advised that they had been at their current levels for as long as she had been Director of Public Works, which was over five (5) years.

Mrs. Donna Mitchell, Controller/Treasurer, stated that one (1) of the difficulties with trying to get through a street program is that there are other projects in the works that have change orders. She explained that whenever there is a need for a change order, the money historically comes out of the Street Program, noting that this seems to happen every year.

Mayor Christiansen asked if monies allocated for individual line items throughout the entire budget are put in a lockbox specifically for the projects for which they are designated. Responding, Mrs. Mitchell explained that departmental operating expenses all have line items that the department budgets for, and they mostly manage to that. She noted that departments have discretion to move money around in their budget to where it is needed. Mayor Christiansen asked to what percentage staff has discretion to move money. In response, Mrs. Mitchell indicated that there is not really a percentage and it just depends where they need the money, noting that they are not usually big line items. She explained that projects over a certain percentage have to come before Council for approval, such as the $60,000 Salt Barn project. Mrs. Mitchell advised that just about every year money is reduced from the original budgeted amount for some of the blanket projects, such as the Street Program. Mayor Christiansen asked if, in Mrs. Mitchell's opinion, this was a best practice or if it should be changed. Responding, Mrs. Mitchell stated that the way the budgets are done could be looked at a little closer; however, without getting into the details that she had not been into in the past, she could not answer that question. Mayor Christiansen asked if this would be a recommendation, if it was feasible and Mrs. Mitchell answered yes.

Mr. Anderson recalled that street money had been about one-half the current amount at one (1) point in the last five (5) years and then had increased. He asked if Mrs. Mitchell had any idea about the changes in the General Fund budget for street money over the last five (5) years. In response, Mrs. Mitchell expressed her belief that the City Manager was trying to keep the amount at approximately $1M per year; however, when the budget cannot be balanced, this is one (1) of the first places that is usually reduced. She indicated that it had been close to $1M for the past two (2) years, stating her belief that it was approximately $1M last year and approximately $800,000 the year before. Mr. Anderson recalled that it had been much lower five (5) years ago and had been slowly edging up. Mrs. Mitchell stated that she had looked at the Street Program for the last two (2) years and it had been reduced by approximately $220,000 for other projects.

Mrs. Duca informed members that it had been a challenge for everyone involved to deal with unknown environmental issues and other factors that had come into projects on the capital side. On the operating side, she noted that it had also been a challenge for Council, the Controller/Treasurer, and the City Manager to deal with some of the environmental requirements that the City had to pay for. Mrs. Duca advised that the Municipal Separate Storm Sewer System (MS4) Program had prevented the City from being able to do preventative maintenance that was desired. For example, she noted that the MS4 Program increased by over $100,000 and was in the Streets Division budget, which is the same budget that pays for some of the concrete work, and the environmental requirements had limited growth in other areas.

Mayor Christiansen asked if Mrs. Duca was saying that too many governmental regulations were getting in the way. Responding, Mrs. Duca stated that it is a challenge to determine how to get the money to do these projects.

Mr. Neil moved for adjournment of the Utility Committee meeting. The motion was seconded by Mr. Hutchison and unanimously carried.

Meeting adjourned at 8:00 p.m.

Mr. Neil moved for adjournment of the Council Committee of the Whole meeting. The motion was seconded by Mr. Cole and unanimously carried.

Meeting adjourned at 8:00 p.m.

William F. Hare
Acting Chair

WFH/TM/js/dd
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Attachments
Attachment #1 - A report entitled "Independence Boulevard Traffic Calming Measures Report," received via email from Mr. C. David Jamison on January 23, 2017
Attachment #2 - Correspondence and attachments dated February 27, 2017, addressed to the Office of the Mayor and Council, provided by Retired Colonel Thomas J. Dix

Independence Boulevard Traffic Calming Measures Report



Prepared by C. David Jamison, PE
cdjpe1@gmail.com

Executive Summary

This report analyses whether the proposed Traffic Calming Measures for Independence Boulevard were the correct treatments to reduce speeding traffic. A working group comprised of residents from Bicentennial Village and DelDOT developed the measures which included a "Realignment" at W. Green Blade Drive and a "Round-A-Bout" at Colony Drive. The project was to be paid for by the State of Delaware Community Transportation Funds.

The need for the measures are Speeding and Accidents as described in the minutes of the May 9th, 2016 City of Dover Annual Council Meeting with the Safety Advisory and Transportation Committee. Through the FOIA process, copies of the Speed Study conducted by the City of Dover Police Department and the accident history on Independence Boulevard were obtained.
The results were as follows:

- Speed Study
  The speed monitor counted 26,300 vehicles over a one week period on Independence Boulevard with an average speed of 29.1 mph
- Accident History
  Contrary to what was said at the SA&TC meeting, there were no accidents on the section of Independence Boulevard between Walker Road and the Greentree Shopping Center (see Figure 1). The accidents occurred at the Independence Boulevard/Forest Avenue (Rt. 8) intersection with the majority at the Olde Oak Shopping Center entrance/parking lot.

Therefore, there was no justification for the proposed Traffic Calming Measures (at an estimated cost of $176,000) other than the problem of those drivers exceeding the speed limit by an average of 5 mph. A more appropriate and cost effective solution is the installation of a Radar Speed Sign which shows the drivers the speed they are traveling with a flashing LED lighted screen. This is a known speed deterrent as described in the DelDOT Traffic Calming Manual. The cost: $5,000.

Taking into account the negative impacts and significant costs the proposed Traffic Calming Measures would have (as described in the report) it is recommended that the Radar Speed Sign be used to slow the traffic to the 25 mph speed limit. This, in turn, will free up CTF funds for other projects in need of road repair on the City of Dover municipal streets.

As a retired DelDOT Highway Engineer and currently a Traffic Engineer in private practice, my primary focus is the safety of the traveling public. Such was the case in the preparation of this report, taking into account the best interest of those drivers and residents using Independence Boulevard on a daily basis.

C. David Jamison

C. DAVID JAMISON
REGISTERED
NO. 4814
DELAWARE
PROFESSIONAL ENGINEER

January 23, 2017

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Purpose

This report evaluates the impact two proposed Traffic Calming Measures (TCM) will have on Independence Boulevard, a City of Dover municipal street connecting Walker Road (Road 104) and Forrest Avenue (Rt. 8). The road users affected by the proposals are: a. the residents of the adjacent developments; b. drivers whose destination is to the Greentree and Olde Oak Shopping Centers located at the intersection of Independence Boulevard and Rt. 8 ; and c. drivers avoiding heavily traveled Rt. 15 (Kenton Road).

Origin

The need for the TCMs was discussed before the Safety Advisory and Transportation Committee (**SA&TC**) during the City of Dover Annual Council Meeting held on May 9th, 2016 (beginning on page 28 of the minutes found on the City of Dover website). At the meeting Representative Sean Lynn stated that residents of Bicentennial Village had expressed concerns of speeding and accidents on Independence Boulevard. A working group was set up with DelDOT to look at traffic calming measures throughout the neighborhood. The Traffic Calming Measures developed were an Intersection Realignment at West Green Blade Drive and a Round-A-Bout at Colony Drive. Rep. Lynn noted that he would pay for this project using his Community Transportation Funds (CTF) and that the project was a portion of a two part traffic calming measure proposal (the second portion located on North State Street),

Speed Study

A Speed Study on Independence Boulevard was conducted by the City of Dover during the period from May 12, 2015 to May 18, 2015. A Metro Counter was placed south of Colony Drive across Independence Boulevard. The results of the Speed Statistics by Hour showed that for 26,300 vehicles, the Mean (average) speed was 29.1 mph. It should be noted that at the time of the study, there was no yellow center lane striping (installed 2016) which would have had a calming effect on the drivers.

Accident History

During the May 9th, 2016 Council Meeting with the **SA&TC** it was stated that there was an accident problem on Independence Boulevard based on accident history: 3 in 2013; 2 in 2014; and 10 in 2015. The redacted accident reports on Independence Boulevard were obtained via the FOIA. The results showed that contrary to what was stated at the May 9th meeting, there were no accidents on Independence Boulevard. All but one accident were near the intersection with Forrest Avenue (Rt. 8). Most were near the parking lot on the east side of Independence Boulevard where the Ace Hardware Store is located. At the northern intersection of Independence Boulevard and Walker Road there was 1 accident in 2013, a vehicle hitting the Bicentennial Village Entrance Sign. See page 2, **Figure 1** for Accident History Locations.

Figure 1

Independence Boulevard
Accident Locations

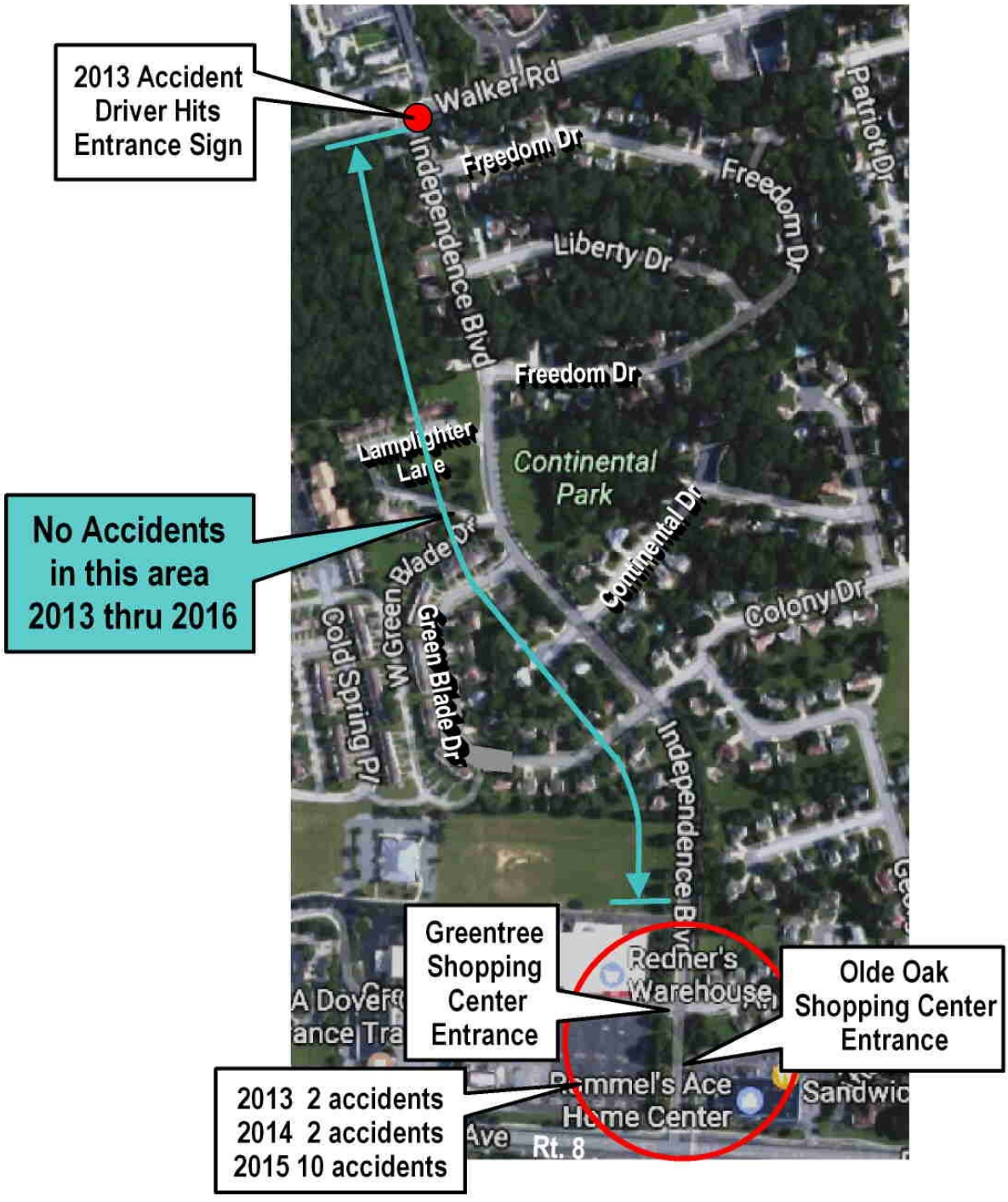


Figure 2

Independence Boulevard
Existing Traffic Calming Measures

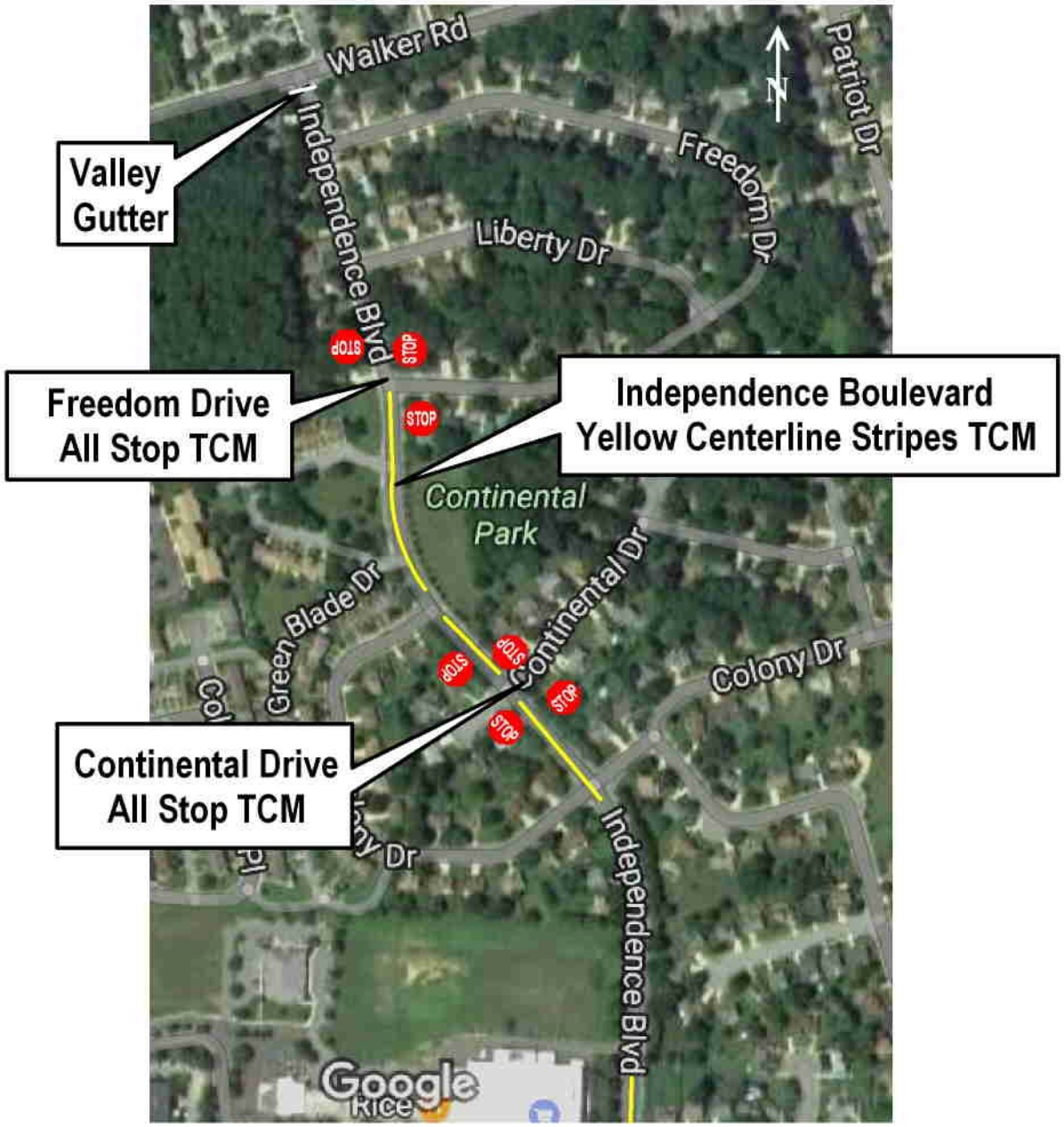


Figure 3

Independence Boulevard
Proposed Traffic Calming Measures
Locations

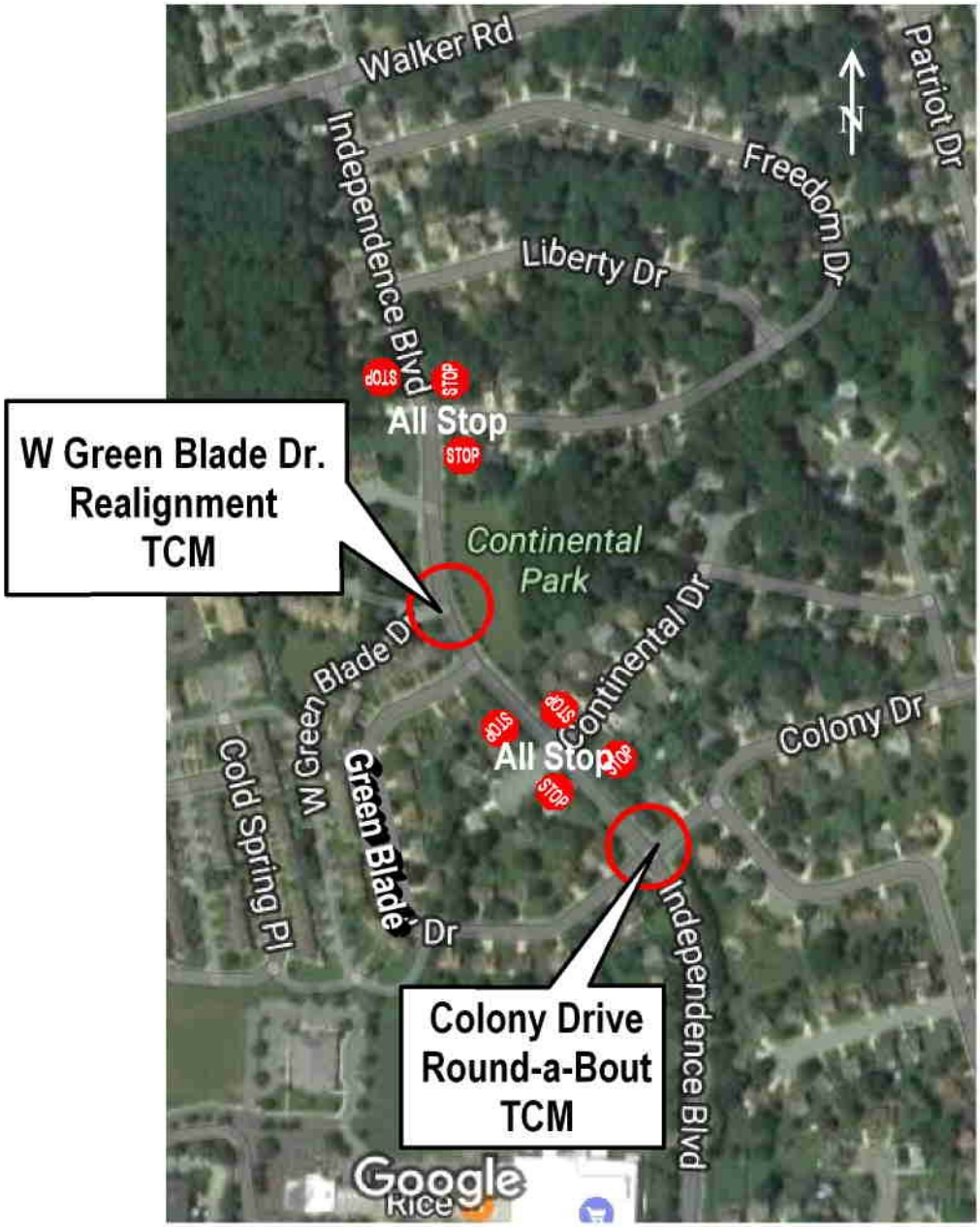
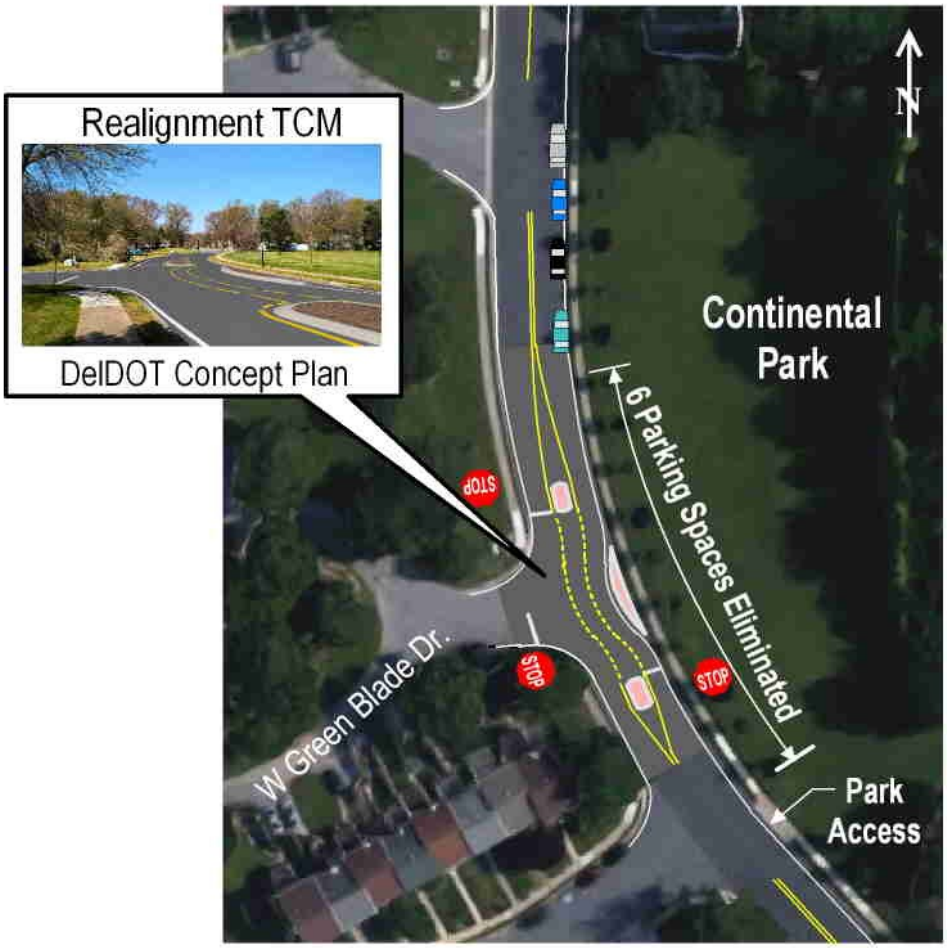


Figure 4

Independence Boulevard/W Green Blade Drive Realignment Traffic Calming Plan

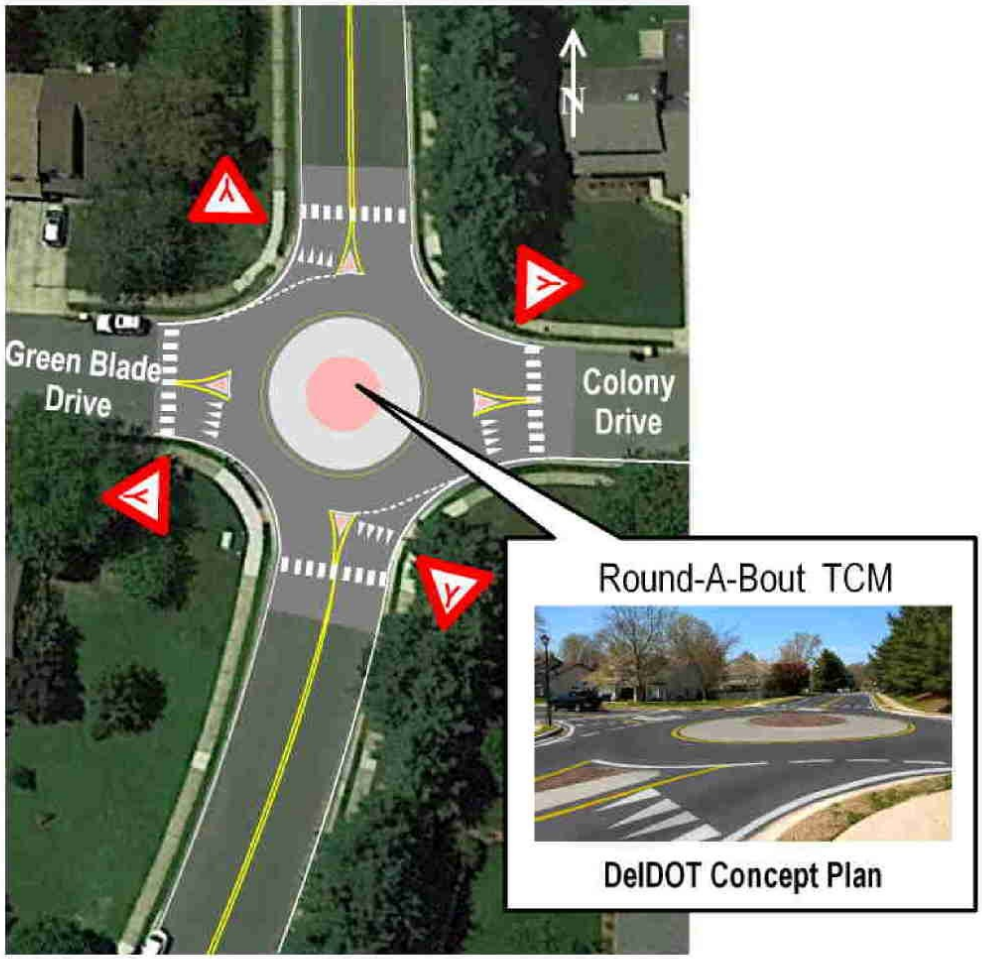


Issues:

- Continental Park is a City of Dover Park and used for outdoor events (ex. St. Johns Church annual Field Days). The proposed Realignment TCM will eliminate 50% of available parking that now exists on the east side of Independence Boulevard.
- Bicycle users will have to negotiate thru the realigned intersection as opposed to using the shoulders under existing conditions.
- Snow removal by City of Dover forces will be made difficult by the proposed islands as part of the realignment TCM.
- The cost of the proposed Realignment TCM will cost an estimated **$ 54,000**

Figure 5

Independence Boulevard/Colony Drive Round-A-Bout Traffic Calming Plan

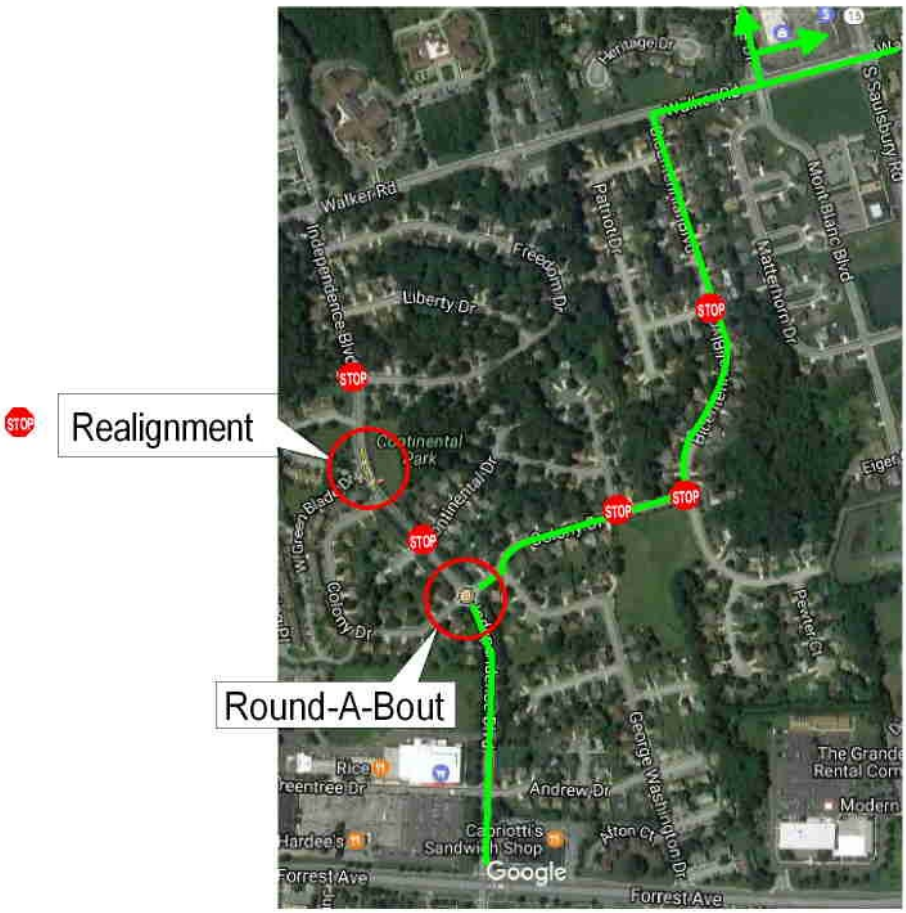


Issues

- Having four yield signs to control traffic thru the intersection creates an opportunity for bad judgement/human error and potential vehiclular and pedestrian accidents
- Snow removal by City of Dover forces will be made difficult by the proposed islands as part of the Round-A-Bout TCM.
- Single unit 30' length Trucks (ex. UPS) will be challenged making left turns via the Round-A-Bout. Larger 3 or more axle trucks will have to reroute.
- The cost of the proposed Round-A-Bout TCM will be an estimated **$ 122,000**.

Figure 6

Potential Traffic Diversion from Independence Boulevard to Bicentennial Boulevard



Some Traffic going to the Hamlet Development, the Hamlet Shopping Center or the Saulisbury Road/WalkerRoad Intersection may chose to turn right at the proposed Round-A-Bout to go to Bicentennial Boulevard to avoid the proposed Independence Boulevard Traffic Calming Measures

Figure 7

Alternative Traffic Calming Measure
Radar Speed Sign

DelDOT's Traffic Calming Supervisor Mike Somers, who is coordinating the TCMs on the Independence Boulevard project, has noted before to the City of Dover Council that Radar Speed Signs "**have proven to be successful in reducing vehicular speeds**".

Radar Speed Signs may be purchased through the DelDOT CTF process and provided to the City of Dover for installation. The approximate cost would be $**5,000.**



CONCLUSIONS

THE INDEPENDENCE BOULEVARD TRAFFIC CALMING MEASURES REPORT evaluates the impact the Proposed Traffic Calming Measures (**PTCM**) at West Green Blade Drive and Colony Drive would have on the drivers of Independence Boulevard if implemented. The reasons for the proposed TCMs were based on reported driver speeding and a history of accidents on Independence Boulevard as so stated at the City Council 5/9/2016 meeting with the Safety Advisory & Transportation Committee (**SA&TC**). The Report's evaluation found the following:

- **Speed Study**

The results of a speed study conducted by The City of Dover Police Department in 2015 showed that the average speed was 29.1 mph. This was recorded prior to the placement of double yellow center lines installed in 2016 which have a calming effect on the motorists. The results of the Speed Study did not provide the justification for the construction of the **PTCM**s on Independence Boulevard.

- **Accident History**

As mentioned above, at the **SA&TC** meeting a concern was expressed that due to the number of accidents that reportedly had occurred on Independence Boulevard (15 accidents in 3 years) there was an accident problem. The FOIA requested accident reports were evaluated and show that for the period of 2013 thru 2016 the accidents that occurred on Independence Boulevard were at the intersection with Rt. 8 and at the Shopping Center Entrances. See page 3 **Figure 1** for accident locations.

- **PTMC Issues**

  - **Realignment at West Green Blade Drive** (See **Figure 4**)

    The plan calls for a stop condition with islands being placed on Independence Boulevard. A major downside to this plan is the impact to the adjacent City of Dover Continental Park. It would eliminate 50% of the parking on the Continental Park frontage which is used during Park events.
    Estimated cost $54,000.

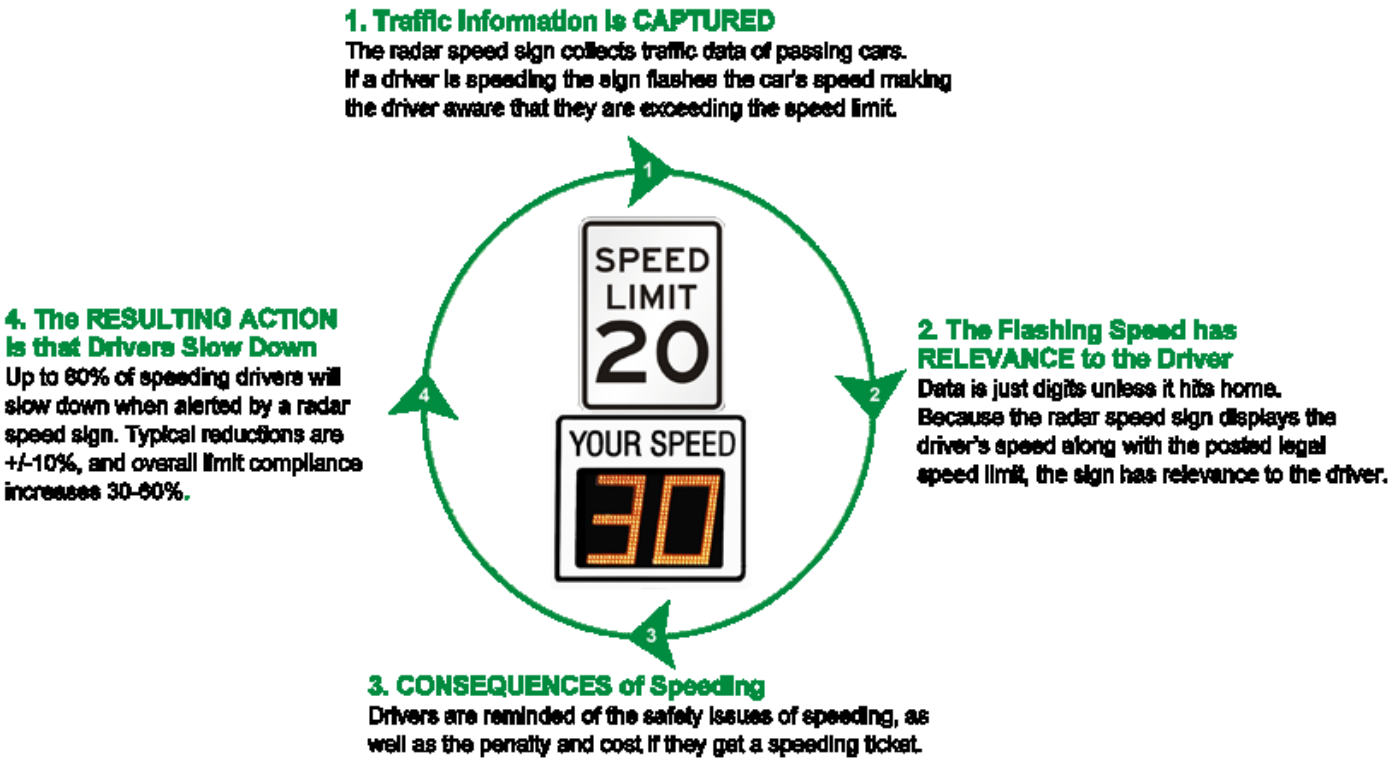
  - **Round-A-Bout at Colony Drive** (See **Figure 5**)

    This concept has been used to calm traffic at various locations in Delaware. Most of them are used in developments or low volume roads. Independence Boulevard, however, is a high volume roadway (4,500 daily trips+/-). A safety concern is, with the volume of traffic on Independence Boulevard, that the 4 Way **Yield** scenario would create accident potential due to human error (*who goes first*).
    Estimated cost $122,000.

  - **Loss of Shoulders for Bike Use and Difficult Snow Removal**

- **Proposed Alternative TCM**

An alternative traffic calming measure is the Radar Speed Sign RSS as shown on **Figure 7**. Radar speed signs give drivers notice that they are speeding by shifting the driver's brain out of the alpha state where the brain is aware but relaxed into the beta state where the brain is alert and focused. As a result, the driver responds to the flashing speed alert and slows down as explained in the following diagram:



RSSs are known to reduce speeding on roadways as acknowledged by DelDOT. Examples can be observed at the Radar Speed Signs located on both southbound North Governors Avenue and North State Street to the south of the Governors Avenue / State Street / Walker Road intersection*. Drivers see their speed blinking on the sign and slow to meet the posted 25 mph speed limit. Adding a camera to the RSS would increase its effectiveness and should be taken into consideration in the final determination of what is the appropriate action to take on Independence Boulevard.

* *It should be noted that the existing North State Street RSS location referred to above and shown on* **Figure 7** *was the other portion of "the two (2) part traffic calming measure proposal" as stated in the City Council 5/9/2016 meeting with the* ***SA&TC*** *and referred to in the* **Origin** *on page 1.*

RECOMMENDATIONS

- In the final analysis, the speeding and accident problems that were the basis for the Proposed Traffic Calming Measures on Independence Boulevard do not exist to the degree that justify the use of the proposed Realignment and Round-A-Bout Traffic Calming Measures. The problems they would create outweigh any benefits to the residents of the adjacent communities or to the traveling public using Independence Boulevard on a daily basis.

- The cost difference between the proposed TCMs plans and the Radar Speed Sign is a significant factor:

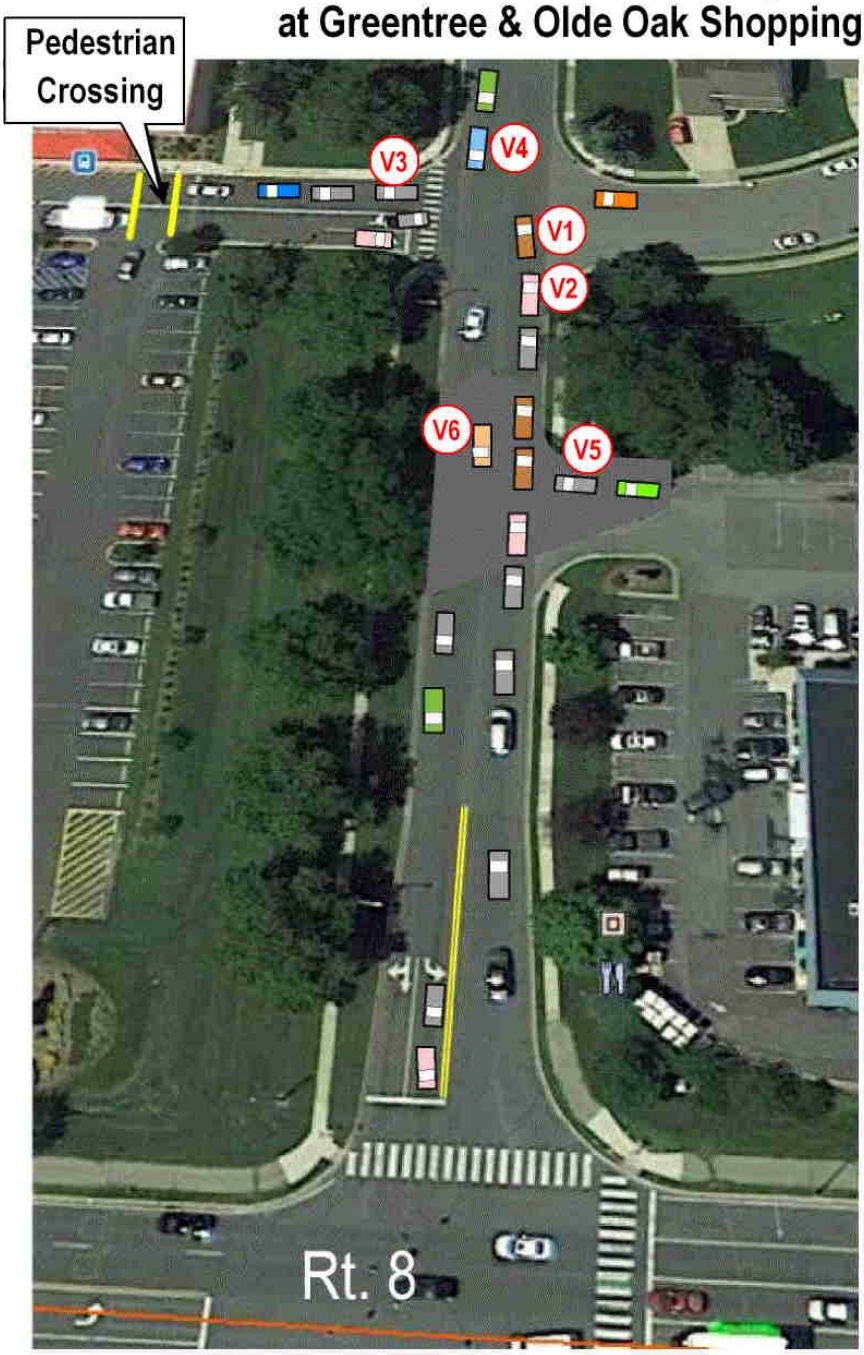
o Realignment at W Green Blade Drive	$54,000
o Round-A-Bout at Colony Drive	122,000
Total Cost	$176,000
o Radar Signal Sign	$5,000

- Selecting the Radar Speed Sign Alterative on Independence Boulevard would address the "speeding" problem (average monitored speed 29.1 mph) and enable expenditure of Community Transportation Funds on the city's more serious transportation issues that require attention.

Addendum The following **Figures 8** and **9** on pages 12 and 13 illustrate a traffic problem at the Greentree and Olde Oak Shopping Centers that could be corrected with pavement markings which would designate needed left turn lanes to allow traffic flow thru on Independence Boulevard. As an area with an accident history, CTF funds could be used to help remedy this problem.

Figure 8

Accident Potential
Northbound Delays
at Greentree & Olde Oak Shopping Centers



- **V1** waits to make LT into Greentree SC
- **V2** waits to go north on Independence Blvd.
- **V3** waits for traffic stopped for Peds.
- **V4** waits to make RT into Greentree SC
- **V5** waits for gap in northbound traffic
- **V6** waits for gap in northbound traffic

A northbound backup creates gridlock for vehicles accessing the Greentree and Olde Oak Shopping Centers and for those drivers going North on Independence Boulevard

Figure 9

Greentree & Olde Oak Shoping Centers
Proposed Improvements via Pavement Markings



- **V1** waits in LT Lane into Greentree SC
- **V2** goes north on Independence Blvd.
- **V6** waits in LT Lane

By adding Left Turn Lane Striping and relocating the Pedestrian crossing the northbound traffic can proceed North on Independence Boulevard.

Thomas J. Dix
664 Independence Blvd.
Dover, DE 19904

February 27, 2017

Office of the Mayor and Council
City Hall
15 Loockerman Plaza
Dover, DE 19903

Dear Gentlemen,

Over a year ago I was appointed to a committee by the Mayor to work with DelDOT and State Representative Sean Lynn along with Will Garfinkel and Doug Stamm to solve our traffic problems in Bicentennial Village. The result of our work was presented by DelDOT to the Traffic and Safety Advisory Committee and the full Council with open comments from residents and was approved on May 9, 2016. In January of 2017 I found out that the motion was flawed.

Sometime in January 2017, I received a draft copy of "Independence Boulevard Traffic Calming Measures Report" prepared by C. David Jamison. It was dated and signed on January 10, 2017, and sealed with a Professional Engineer Seal. He therefore could be held liable for any mistake he makes. I am told he is a civil engineer, retired from DelDOT. I have never met Mr. Jamison.

Even though he labels his report as "Traffic Calming Measures," Mr. Jamison does not adhere to the definition of traffic calming from the DelDOT Road Design Manual. Quoting paragraph 10.2 of the Manual:

> "In communities where speeding and/or cut-through traffic has been identified as a problem, it may be appropriate to consider the feasibility of one or more traffic calming measures. Such measures are intended to encourage adherence to posted speeds and/or discourage inappropriate routing of non-residential or non-local traffic through communities."

In his report, Mr. Jamison's emphasis is totally on speed and there is no mention of traffic diversion. He made a number of mistakes.

FIRST MISTAKE. Mr. Jamison miscalculates the number of parking spots lost due to the construction of the realigned intersection on Independence Blvd. along Continental Park.

*Actually, it is **not** a loss of 50%; IT IS ONLY a loss of 22% with the installation of the realigned intersection. We still have 28 spots on the east side of Independence Blvd. at the park and 20 on the west side.*

SECOND MISTAKE. He states that single unit 30' length Trucks (ex. UPS) will be challenged making left turns via the Round-A-Bout.

This is incorrect. This UPS truck can even make left turns around the Mifflin Rd. roundabout, which has a much smaller diameter than the one approved for Independence Blvd.

THIRD MISTAKE. He states that double yellow centerline striping would have a calming effect on drivers using the roadway.

On the contrary, the latest Metro Count, taken in February 2017, shows that the average speed on Independence Blvd. ***increased*** *after striping.*

FOURTH MISTAKE. He states that on a high volume road (5,000 daily trips+/-), which would be atypical for the use of the type of Round-A-Bout being proposed, ... the 4 Way Yield scenario would create accident potential.

A Federal Highway Administration circular states that the maximum flow rate is 1800 vehicles/ hour for a single-lane urban roundabout, such as the roundabout approved for Independence Blvd. The Federal Highway Administration has also stated that roundabouts reduce fatalities up to 90%, reduce injury crashes by 75%, reduce pedestrian crashes 30%-40%....

[See Federal Highway Administration (FHWA) Transportation Research Circular E-C 018; also, the paper "Capacity and Performance of Roundabouts: A Summary of Recommendations in the FHWA Roundabout Guide," by Kittelson & Associates, USA.]

FIFTH MISTAKE. Mr. Jamison recommends that an alternative to the proposed TCMs [traffic calming measures] would be the installation of a Radar Speed Sign on Independence Boulevard and that these are known to reduce speeding on roadways as acknowledged by DelDOT.

But I refer to the DelDot Traffic Calming Design Manual, page III-9, regarding Radar Speed Signs. Under the heading "Traffic Diversion," the manual states: "No impact." Under the heading "Disadvantages," the manual states: "Impact may be reduced over time unless regularly enforced by local police." Under the heading "Advantages," the manual states: "Can cause speeds to be reduced within a community."

I will add, a single Radar Speed Sign only works in one direction!

I just want to set the record straight.

Sincerely,

Thomas J. Dix

COL. USAF(ret.)

SUBMITTED BY THOMAS J. DIX, February 27, 2017

MR. JAMISON'S REMARKS
"Continental Park is a City of Dover park and used for outdoor events (ex. St. John's Church annual Field Days). The proposed Realignment TCM will eliminate 50% of available parking that now exists on the east side of Independence Boulevard."

MY REBUTTAL
Between Continental Drive and Freedom Drive is just less than 800 feet. The realigned intersection runs for less than 170 feet. Less than 22%. I personally talked to the teacher from St. John's during her two-day outing at Continental Park. They walked from the school. Continental Park is listed as a passive park by the city of Dover. Football and soccer practice used to take place there. I talked to the coaches on a few occasions. They found the dog poop unacceptable. I believe it has been four or five years since they used the field. They now practice in the field just north of Redner's. Mr. Jamison wants us to believe that this class is one of many that use the park. The fact is that this was the only use by an organized group in recent history. Nowadays, you will seldom, if ever, see a car parked along here. This portion has the highest speeds of any part of Independence Blvd. That is why it was chosen for this remedy. No permits were issued for use of Continental Park in 2016!

MR. JAMISON'S REMARKS
"Bicycle users will have to negotiate thru the realigned intersection as opposed to using the shoulders under existing conditions."

MY REBUTTAL
Bicycles should by law use the ordinary road unless there is a designated bike lane. With a stop sign as part of the realigned intersection, bikes have a better chance of being seen. Speeding will be reduced and bikes will be safer.

MR. JAMISON'S REMARKS
"Snow removal by City of Dover forces will be made difficult by the proposed islands as part of the realignment TCM."

MY REBUTTAL
I have lived on Independence Blvd since 1999. The snow removal crews have never hit the median island. However, the marquee has been hit three or four times by ordinary drivers!

MR. JAMISON'S REMARKS
"Having four yield signs to control traffic thru the intersection creates an opportunity for bad judgement/human error and potential vehicular and pedestrian accidents."

MY REBUTTAL
Roundabouts generally reduce deadly accidents, according to the Federal Highway Administration. [See Mr. Jamison's remarks beginning "Round-A-Bout at Colony Drive" on p. 3 and my rebuttal.]

MR. JAMISON'S REMARKS
"Snow removal by City of Dover forces will be made difficult by the proposed islands as part of the Round-A-Bout TCM."

MY REBUTTAL
Snow removal will occur the same as at any other curve in the City. At the several other roundabouts, collisions with the islands have not been a problem.

MR JAMISON'S REMARKS
"Single unit 30' length Trucks (ex. UPS) will be challenged making left turns via the Round-A-Bout. Larger 3 or more axle trucks will have to reroute."

MY REBUTTAL
I have personally consulted the State publications. They indicate that a truck with a 35-foot wheelbase can do a 360-degree turn on a 70-foot roundabout. Trucks are prohibited unless doing local delivery on Independence Blvd. The longest wheelbase truck that normally transits Independence Blvd is a school bus, with a 34-foot wheelbase. The three-axle fire dept. ladder truck has a wheelbase under 35 feet. A UPS single unit, P1000 truck has a wheelbase of 15 feet. Local driver, John says he can take his truck around the current Mifflin Rd. roundabout. Tractor-trailers can go straight through using the truck apron.

MR. JAMISON'S REMARKS
"DelDOT's Traffic Calming Supervisor Mike Somers, who is coordinating the TCMs on Independence Boulevard project, has noted before to the City of Dover Council that Radar Speed Signs have proven to be successful in reducing the vehicular speed."

MY REBUTTAL
I have personally reviewed the minutes of that May 9, 2016, council meeting and do not see those words recorded. I have served on the Mayor's committee that worked with DelDOT in developing the traffic calming project. Douglas Stamm, who lives on Bicentennial Blvd., was also on this committee. He recently wrote to me to tell me that the radar speed sign on Bicentennial Blvd. is not effective. The major problem with the Radar Speed Sign is that it is passive. The driver can totally ignore the sign. The State Traffic Calming Design Manual does not call the Radar Speed Sign successful. It has no value for traffic diversion. It clearly states that police enforcing is required. In addition, the sign only works in one direction!

MR JAMISON'S REMARKS
"There are two existing TCMs in place on Independence Boulevard, All-Way Stops at the intersections at Freedom Drive and Continental Drive. In 2016 a double yellow stripe centerline was installed on Independence Boulevard which has a calming effect on drivers using the roadway. The speed study performed in May, 2015 (prior to the yellow centerline striping) showed that the mean (average) speed of drivers was 29.1 mph."

MY REBUTTAL

I do not understand the point of the above remark. The Mayor's committee requested the city to paint the double lines. Painted lines are addressed in the State Traffic Calming Manual. They do have effect but they are passive. Some drivers totally ignore them. I find a mean of 29.1 mph to be totally unacceptable. We have half the people driving at 24.1 and the other half driving at 34.1. One group being safe and the other group avoiding a ticket! The top 3% do not care about tickets. We have cars clocked at over 39 mph on Independence Blvd. That is unacceptable. Recent metro count on Independence Blvd in January 2017 shows increase in avg speed after yellow line striping. Traffic Calming Design Manual, page III-9, (attached) says they are ineffective for traffic diversion.

MR. JAMISON'S REMARKS

"The plan calls for a stop condition with islands being placed on Independence Boulevard. This gets the drivers attention by the redirecting of travel lanes. A major downside to this plan is the impact to the adjacent City of Dover Continental Park. It would eliminate 50% of the parking on the Continental Park frontage which is used during Park events."

MY REBUTTAL

The fourth sentence should be at 22% not 50%. This topic was covered. There are no park events. No permits were issued in 2016.

MR. JAMISON'S REMARKS

"Round-A-Bout at Colony Drive

This concept has been used to calm traffic at various locations in Delaware. Most of them are used in developments or low volume roads. Independence Boulevard, however, is a high volume roadway (5,000 daily trips+/-) which would be atypical for the use of the type of Round-A-Bout being proposed. A safety concern is, with the volume of traffic on Independence Boulevard, that the 4 Way **Yield** scenario would create accident potential due to driver's decision-making-stress resulting in human error (*who goes first*)."

MY REBUTTAL

The roundabout would increase the capacity of that intersection vs. the existing stop-start condition. The Federal Highway Administration, Transportation Research Circular E-C 018 states that the maximum flow rate for a single lane urban roundabout is 1,800 vehicles/hr. The F.H.A. has stated that roundabouts reduce fatalities up to 90%, reduce injury crashes 75%, reduce pedestrian crashes 30%–40%, and greatly reduce the severity of injuries sustained in crashes. Also, roundabouts are used in most states and countries worldwide. Maryland, for example, has a policy to use roundabouts instead of stop signs or traffic signals at every appropriate location. Since the "give-way" rule was invented in the U.K. in 1966 — there is no stress or confusion. Diverter islands will be incorporated to make sure the driver does not try to make a left turn on entry. If national accidents are reduced, I would expect that the stress factor is also lowered nation wide.

<u>For further info:</u>

Two attachments follow.

The first is Delaware roundabouts.

The second is federal roundabouts.

MR. JAMISON'S REMARKS

"An alternative to the proposed TCMs would be the installation of a Radar Speed Sign on Independence Boulevard. These are known to reduce speeding on roadways as acknowledged by DelDOT. An example can be observed at the Radar Speed Sign located on southbound North Governors Avenue just to the south of the State Street intersection. Drivers see their speed blinking on the sign and slow down to meet the posted 25 mph speed limit.

"In the final analysis, the problems that the proposed Realignment and Round-A-Bout Traffic Calming Measures create outweigh any benefits. That makes the cost difference between the proposed TCMs plans and the Radar Speed Sign a significant decision making factor…"

MY REBUTTAL

The Traffic Calming Manual page III-9 (attached) has two anticipated impacts for Radar speed signs.
Under Traffic Diversion: "No impact." [We are looking to reduce the bypass traffic.]
Under Disadvantages: "Impact may be reduced over time unless regularly enforced by local police."
[Note Doug Stamm's letter below.]

MY FINAL REBUTAL

A letter from Douglas Stamm, who lives close to the intersection of Bicentennial Blvd. and Declaration Ave.

From: Douglas Stamm
To: Thomas J. Dix
Subject: Re: flashing radar sign
Tom,
Since the sign was installed, I have not noticed a significant difference in the behavior of drivers on Bicentennial Boulevard. While it may cause some southbound (direction in which the sign is facing) drivers to pay more attention to their speed, a majority of the cars heading South continue to exceed the posted limit. Obviously, it has no impact on the vehicles heading North towards Walker Road nor has it impacted in any manner the number of vehicles heading in either direction which ignore the stop signs at the intersection of Bicentennial and Declaration... regardless of the time of day/night, many vehicles run the stop sign with a number of them being residents of this community. In theory, the speed limit sign was a good idea but that is all it is... it has not been an effective deterrent to excessive speed. The only effective deterrent to reduce speed and sign violation is DPD presence but I doubt they have the resources to sustain their visibility for an extended time period.
Doug

<u>Please Note:</u>

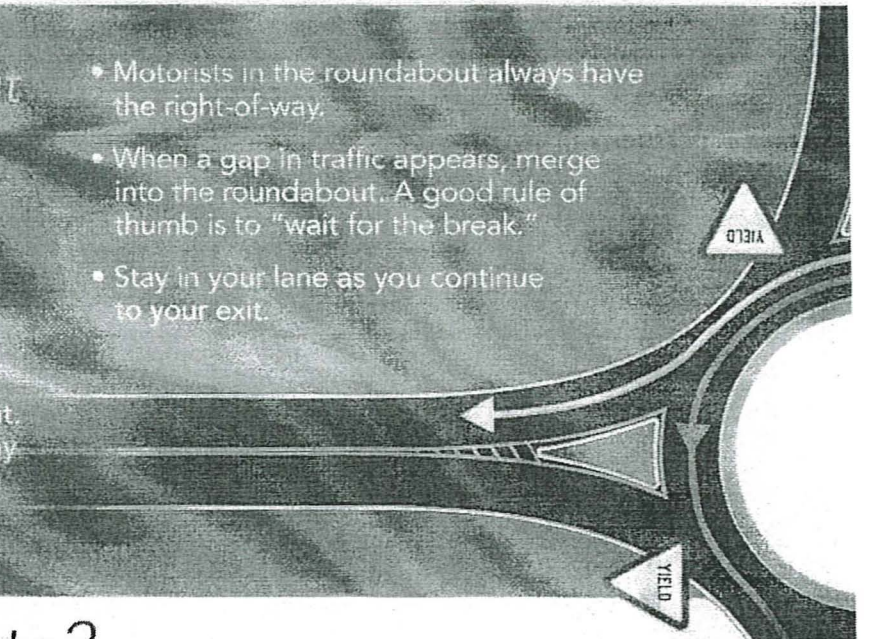
Doug Stamm, Will Garfinkel and Tom Dix were appointed by Mayor Christensen to work with DelDOT to solve our traffic problems in Bicentennial Village.

The Traffic Calming Measures designed by DelDOT for Bicentennial Village were approved by the City of Dover Traffic Advisory Committee and subsequently by the City of Dover Council with a public hearing on May 9, 2016. In January of 2017 I found out that the motion was flawed. The measures are fully funded with Community Traffic Funds from our State Representative and State Senator.

Navigating a roundabout

By understanding what a roundabout is and how it works, you will be able to travel through intersections easier and safer.

- When you approach the roundabout, slow down, look for, and yield to pedestrians and bicyclists.
- At the yield sign, look to the left and yield to traffic already in the roundabout. If there are no vehicles present, you may proceed without stopping.
- Look for guide signs to assist you in making the correct route choices.
- Motorists in the roundabout always have the right-of-way.
- When a gap in traffic appears, merge into the roundabout. A good rule of thumb is to "wait for the break."
- Stay in your lane as you continue to your exit.

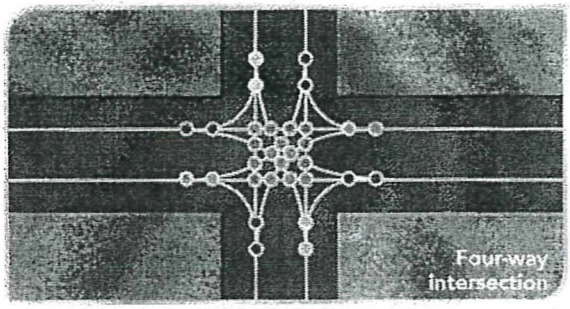


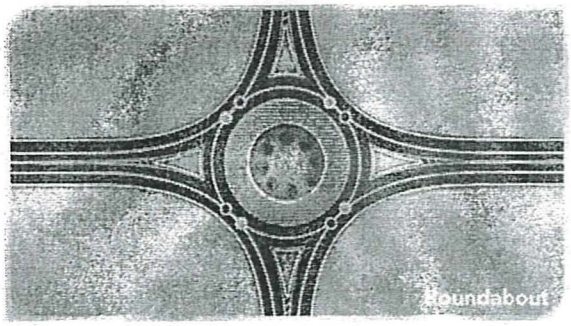
Why roundabouts?

Hundreds of communities throughout the United States are replacing regular intersections with roundabouts because they are often a safer way to move traffic.

Safer than traditional intersections

In a traditional four-way intersection, there are 32 points of conflict in which two vehicles may collide. Roundabouts have only eight conflict areas, greatly reducing the potential for crashes.





Drastically reduces severe crash injuries

The circulating movement of roundabouts nearly eliminates the potential for high-speed, right-angle, and left-turn/head-on collisions. Rear-end collisions are also reduced in roundabouts. Crashes in roundabouts are typically minor, translating into less severe injuries and property damage. National studies have shown roundabouts provide a:

- **90%** reduction in fatal crashes
- **75%** reduction in injury crashes
- **30-40%** reduction in pedestrian crashes
- **10%** reduction in bicycle crashes

Easier for beginning and senior drivers

Slower vehicle speeds mean drivers have more time to judge and react. This is especially important for beginning drivers and older drivers. A 2007 study by the University of Delaware looked at the needs of older drivers and recommended replacing conventional intersections with roundabouts, especially in areas where there are large populations of seniors.

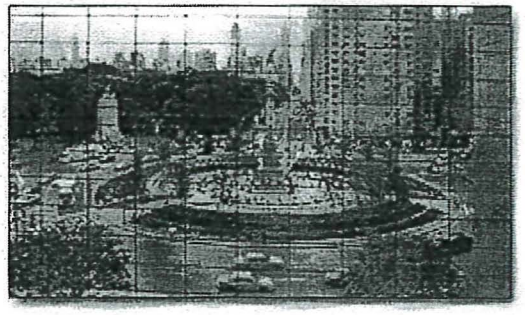
Select Language

Community Programs and Services

Roundabout History

It all began around 1905...

Traffic circles have been part of the transportation system in the United States since 1905, when the Columbus Circle designed by William Phelps Eno opened in New York City. After that, many large circles or rotaries were built in Canada and the United States. The designs at that time allowed vehicles to merge and weave at high speeds. Entering vehicles had the right-of-way, allowing high-speed entries. High crash experience and congestion in the circles led to rotaries falling out of favor in North America after the mid-1950s. Internationally, the experience with traffic circles was also bad, as many countries found that traffic circles locked up as traffic volumes increased.



Changes in the United Kingdom created the modern roundabout...

The modern roundabout was developed in the United Kingdom to fix traffic circle problems. In 1966, the United Kingdom adopted a mandatory "give-way" rule at all circular intersections that required entering traffic to give way, or yield, to circulating traffic. This rule prevented circular intersections from locking up, by not allowing vehicles to enter the intersection until there were enough gaps in circulating traffic. In addition, smaller circular intersections were proposed that made vehicles turn more tightly, resulting in slower entry and circulating speeds.

Modern roundabouts have improved traffic safety and traffic operations over older circles...

These changes improved the safety of the circular intersection by reducing the number and particularly the severity of collisions. The modern roundabout is significantly different from the older traffic circle both in how it operates and in how it is designed. The modern roundabout is greatly improved in terms of operations and safety, when compared with older rotaries and traffic circles. Many countries have adopted the modern roundabout as a common intersection form.

Modern roundabouts have improved environmental impacts...

A well designed, strategically placed modern roundabout is better for the environment than a signalized intersection because it creates shorter delays for motorists and shorter vehicle queues. The longer delays associated with traffic signals result in more vehicles idling for longer periods. Vehicles approaching a roundabout tend to arrive in a slow "rolling" pace rather than the typical stop/start behavior at signalized intersections. This results in lower fuel consumption. Recent studies have shown that idling vehicles emit larger amounts of some types of pollutants than vehicles traveling at moderate speeds. Based on this finding, fewer idling vehicles at a roundabout will result in lower emissions of certain pollutants than the same traffic at a signalized intersection.

References: Federal Highway Administration, Roundabouts: An Informational Guide, Report No. FHWA-RD-00-067, June 2000.

Select Language

Community Programs and Services

Frequently Asked Questions

Q. Once I'm in the roundabout, should I stop to let other vehicles enter the roundabout?
A. No, do not stop except to avoid a collision. You have the right-of-way over entering traffic.

Q. What determines the size of a roundabout?
A. Factors that determine the size of a roundabout generally include the amount of traffic, the size of the largest vehicle, and an appropriate travel speed.

Q. Are roundabouts appropriate everywhere?
A. No. The choice of using a roundabout versus other types of traffic control is a case-by-case decision.

Q. I drive a big truck, and that roundabout looks awfully tight. Will I fit?
A. Yes. The roundabout is designed so that large trucks can traverse them. Most trucks, even large ones, should drive on the travel lanes like most vehicles. Your trailer may track onto the portion of the center island termed the "truck apron".

Q. What if an emergency vehicle comes through the roundabout?
A. If you have not yet entered the roundabout, let the emergency vehicle pass you. If you are in the roundabout, continue on and exit as normal, then pull to the right where there is room for the emergency vehicle to pass. Do not stop inside the roundabout because you may block the emergency vehicle.

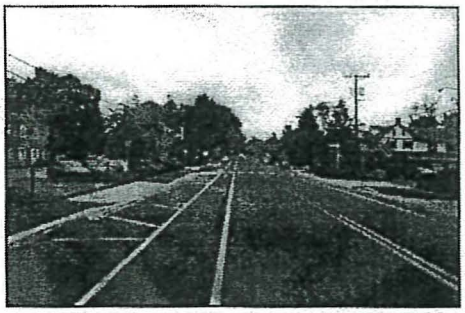
Q. What about snow removal at roundabouts?
A. A number of communities in snowy areas have installed roundabouts, including Hamilton, Ontario; Kemptville, Ontario; Howard (Green Bay), Wisconsin; Montpelier, Vermont; and Vail, Colorado. All have indicated that while there are some changes at first for snowplow crews, there are generally no major problems with snow removal in roundabouts. In Howard, Wisconsin for example, one truck will start on the truck apron and plow around the roundabout to the outside, while another truck will plow each entry and exit, pushing the snow to the outside. Roundabouts make it easier to turn snowplows.

3A.2 NON-CONSTRUCTION MEASURES: *Striping*

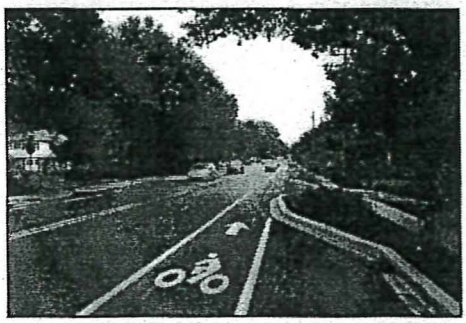
Description:

Pavement striping as a means of controlling speed includes measures to effectively narrow the travel lanes to encourage lower speeds, to emphasize pedestrian crossings, or to supplement signing regulations (such as existing stop signs). Striping which can be used in traffic calming includes centerline stripes, edge line stripes, crosswalks and stop bars at existing stop signs.

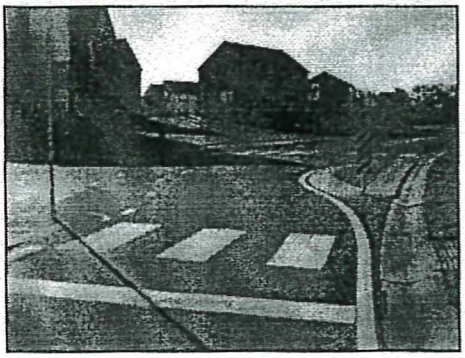
Pavement striping options can vary depending on the type of striping being used; therefore, the application of each type of striping treatment is as follows:



Centerline Striping: Centerline striping is primarily used for residential streets without existing centerlines. In many cases, a centerline stripe can be effective in channeling traffic and thereby reducing speeds. There are also other specialized striping techniques that can be used to draw attention to lane markings, such as the addition of reflective pavement markers where appropriate.



Edge Line Striping: Edge line striping is also effective in residential areas to narrow the lanes and/or provide additional delineation for other uses. Reducing the lane width has the potential for reducing speed by creating a narrower traffic lane. The area between the edge of the road and the lane marking can often be used for parking or as a bike lane, depending on the resulting shoulder width.



Crosswalks: At high volume pedestrian crossings, striped crosswalks might be appropriate to channelize pedestrians and notify motorists of pedestrians crossing the street. Crosswalks alone may not provide the desired level of protection or call sufficient attention to a pedestrian to allow them to safely cross the street. Depending on the need, there are a variety of crosswalk options that may be used at intersections to identify the safest place to cross. These include ladder-style striping and possibly the use of textured pavements to increase visibility by the motorist and encourage slowing.

Stop Bars: Stop bars may be added at intersections to reinforce existing stop signs, with or without the addition of the word "STOP" on the pavement surface. The use of "STOP" as a pavement marking should be used primarily where there has been a potentially correctable crash trend identified. Stop bars will not be installed without a STOP sign, and any new STOP signs must comply with the warrants and provisions of the DE MUTCD.



Application:

Types of Streets	Appropriate for all streets, no limitation.
Speed Limits	Appropriate for all speed limits, no limitation.
Design Vehicles	Appropriate for all vehicles, no limitation.
Street Grades	Appropriate for all street grades, no limitation.

Anticipated Impacts:

Safety: Striping can help increase awareness and visibility of pedestrians crossing the street. It can also reinforce signing and help position vehicles in the street creating a safer environment for bicycle users.

Speed: Can help reduce speeds on streets by creating narrower travel lanes and increasing the awareness of pedestrian crossings.

Traffic Diversion: No impact on traffic diversion

Advantages:

- Centerline striping can be effective in reducing sideswipe accidents, as it channelizes traffic in its own lane.
- Centerline striping can be combined with edge lines to create narrower travel lanes, which subsequently help to slow traffic.
- Edge line striping may increase bicycle and pedestrian safety by moving vehicle traffic closer to the centerline providing more shoulder space for bicycles and pedestrians.
- Crosswalks provide a visible pedestrian crossing, increasing pedestrian awareness and safety.
- Stop bars reinforce a stop sign location, and can augment the delineation of an intersection.

Disadvantages:

- Periodic maintenance of striping.
- Striping can lose its effectiveness in reducing speed over time as regular users of the street become more comfortable with the physical space they have available to operate.
- Crosswalks used without other traffic control devices may lure pedestrians into a false sense of security.
- Appearance of the road with paint striping may cause residents to feel that the road is a higher classification than a local residential street.

3A.4 NON-CONSTRUCTION MEASURES: *Radar Speed Signs*

Description:

Radar Speed Signs involve the use of electronic speed detection radar equipment, mounted along with the legal posted speed limit on a sign. The signs are placed along a road to increase motorists' awareness of their speed through the corridor. The radar speed sign measures an approaching car's speed and displays it in large, lighted numbers. It does not record the license plate number or take pictures of violators. A Radar Speed Sign can also be mounted on a trailer to allow the technology to be used as a temporary or short term installation. Since DelDOT is not funded to maintain Radar Speed Signs, they are only installed and replaced through CTF funding.



RADAR SPEED SIGNS

Application:

Types of Streets	Appropriate for all streets, no limitation.
Speed Limits	Appropriate for all speed limits, no limitation.
Design Vehicles	Appropriate for all vehicles, no limitation.
Street Grades	Appropriate for all street grades, no limitation.

Anticipated Impacts:

Safety: Promotes safety by constantly reminding drivers when their speeds are excessive and above the legal speed limit.

Speed: Can cause speeds to be reduced within a community.

Traffic Diversion: No impact on traffic diversion

Advantages:

- Can be effective in reducing speeding by drivers. These signs are most effective when a community is supportive and promotes the need for speed reduction through other community educational efforts.
- Can be cost effective when compared with the construction of physical traffic calming measures to reduce speed.

Disadvantages:

- Impact may be reduced over time unless regularly enforced by local police.