Dynamic Flashing Yellow Arrow Operations

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In each issue, the INCITER features an article coordinated by one of NCITE’s technical committees. This article is a contribution from the Intersection Traffic Control Committee.

Flashing Yellow Arrow (FYA) left turn signal indications are becoming widely used for their ability to better balance the competing needs of safety and mobility. The main benefits of FYA make it possible to provide lead/lag protected/permissive left-turn operation to enhance two-way progression on a corridor and improve safety by being more easily understood by drivers compared to a green ball. Another benefit of FYA indications is that they provide the ability to switch between protected only, protected/permissive, and permissive only left-turn phasing modes on the same movement as needed to accommodate varying traffic volumes that occur on a daily basis. This means the left-turn phasing can be changed to protected only during high volume times, while also allowing the ability to change to protected/permissive or permissive only to provide drivers the opportunity to make permissive left turns when volumes are lower and there are gaps in the opposing traffic.
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www.nc-ite.org
Jeff Preston, 2019 NCITE President

Spring is here! Even though the warm weather has mostly eluded us, and northern Minnesota is still seeing snow in May, that hasn’t slowed down the NCITE Executive Board and membership. The first quarter of 2019 has included Section Meetings, Technical Committee Meetings, Young Member activities, and community outreach activities.

Section meetings were held in January, February, April, and May. April’s meeting included a trip to Duluth for a visit with NCITE’s newest Student Chapter, with a second site tuned in by video conference at MNDOT Metro. Topics have been varied and included ASCE’s MN Infrastructure Report Card, MNDOT’s Connected and Automated Vehicle Program, Alternative Intersections, and most recently a look into how the City of Minneapolis is dealing with the proliferation of Scooters. The May meeting also included a membership drive where a member could bring a non-member for free in order to share the benefits of ITE.

Technical Committees have been meeting on a regular basis discussing new and relevant topics while looking to find ways to engage with new members. Our Young Member Committee has also been actively engaged with fun activities and reaching out for new young professionals. Most recently, this group participated in an Earth Day cleanup at a park in downtown Minneapolis. The group is currently planning a Minneapolis Bike tour, more info is on page 10.

For the second year in a row, NCITE members participated in a Community Outreach Event at the Science Museum of MN for Civil Engineering Day 2019. The group organized hands on activities for kids related to the transportation profession and fielded questions. Thanks to those who participated and keep the tradition going.

The Summer Social is currently being planned for mid-June and includes a Saints Game and networking event. A full-day Transportation Symposium is also being planned by our Professional Development Committee. This event is currently anticipated for fall of 2019, so stay tuned for presentation opportunities and registration information. The MWITE Annual Meeting is quickly approaching. Registration is still available for the meeting being held in St. Louis on June 19-21. See the MWITE website for further details. Registration is also open for the ITE Annual Meeting and Exhibit to be held in Austin, TX on July 21-24. See the ITE website for further details.

Over the past year, NCITE has worked to implement more ways to keep members informed through social media. Follow NCITE on our LinkedIn page to find more information about meetings and activities. If you miss a Section Meeting, find a video on NCITE’s YouTube page. Lastly, NCITE has established a Twitter handle to further reach members. You can find us @nc_ite.

Please keep an eye out for information on future Section meetings, continue to participate in committees, take advantage of Professional Development opportunities, and enjoy the upcoming networking and social events. I look forward to seeing you at the next event!

www.nc-ite.org
2019 Midwest District & MOVITE Annual Meeting
June 19-21, 2019
Hyatt Regency | St. Louis, MO

2019 ITE International & Texas District Annual Meeting
July 21-24, 2019
Hilton Austin | Austin, TX

Attend an Upcoming NCITE Technical Committee Meeting!
Check out upcoming topics here.
For more information on the committees and how you can get involved:
https://nc-ite.org/Committee_Listing

For professional development opportunities:
http://nc-ite.org/content.php?page=Professional_Development_Meetings

Upcoming NCITE Events:
http://nc-ite.org/calendar.php
The January Section Meeting was held on January 31, 2019 at Rose Vine Hall in Roseville, MN.

The presenters were Jason Staebell of Hennepin County, Darwin Yasis of TKDA, and Nick Turner of Alliant presenting on the 2018 ASCE MN Infrastructure Report Card. Highlights of the presentation:

This is the first Infrastructure Report Card that has been completed in Minnesota

Infrastructure grades are as follows:
- Aviation = B
- Bridges = C
- Dams = C
- Drinking Water = C-
- Energy = C
- Ports = C+
- Roads = D+
- Transit = C-
- Wastewater = C

Cumulative GPA = C

The average driver spends 41 hours in traffic.

The Twin Cities hosts 5 of the works 100 trucking bottlenecks in the United States:
- I-94 @ US 52
- I-35W @ I-494
- I-35W @ I-4
- I-35E @ I-94
- I-35W @ I-694

Minnesota has the 5th most miles of roadways in the United States but has the 22nd highest motor fuels tax.

In 2010 cable median barrier in Minnesota averaged 5 hits/mile.

More information can be found at www.MnReportCard.com
The February Section Meeting was held on February 21, 2019 at Jax Café in Minneapolis, MN.

The presenter was Jay Heiptas of Minnesota Department of Transportation presenting on the advancement of Connected and Autonomous Vehicles in Minnesota. Highlights of the presentation included:

- Truck Platooning could provide increased efficiencies in trucking, but platooning laws vary greatly by state.
- The CAV industry would like for the Transportation Industry to improve infrastructure by installing better pavement markings and providing real time information (signals, work zones, incident management).

The April Section Meeting was held on April 10, 2019 at University of Minnesota– Duluth with a webcast at MnDOT Metro.

The presenter was Vic Lund of St. Louis County presenting on Innovative Intersections: Leveraging Lower Cost Strategies to Achieve Safety Performance. Highlights of the presentation included:

- In 2017; 37,133 fatalities occurred on roadways in the United States.
- J-Turns/Reduced Conflict Intersections were first introduced in Maryland in the 1980s, they came to Minnesota in 2011.
- Roundabouts were introduced in Wisconsin in the 1990s.
- Increasing the level of control at an intersection does NOT reduce the number of severe crashes.
The May Section Meeting was held on May 15, 2019 at Kip’s in St. Louis Park, MN.

The presenter was Josh Johnson of City of Minneapolis presenting on the 2019 Minneapolis Scooter Program. Highlights of the presentation included:

Minneapolis Scooter Pilot began Aug 6th, 2018 with 200 scooters total
- Bird and Lime started at 100 scooters each
- Approved increase to 300 scooters total in Sept, 2018
  - Included Phillips, Cedar Riverside, and Near North Minneapolis neighborhoods
- City increased to 400 scooters total in Oct 2018
  - Bird and Lime increased to 200 scooters each
- U of MN began its own pilot in Sept, 100 scooters total
- Minneapolis and U of MN pilots both ended on Nov 30th

July 10 – November 30 2018 Scooter Pilot Data
- 225,543 total rides
- 1,566 rides per day
- 74,877 unique users
- 302,326 total miles ridden
- Averaged 1.34 miles per ride
- 70,578 total hours ridden
- Averaged 18.7 minutes per ride
- High of 39 trips in one day on an individual scooter
- 92.7% of city streets and off-street trails were ridden on

2019 Scooter Pilot Program
- Initial maximum of 2,000 scooters
- Public Works may increase or decrease the maximum number of scooters based on performance targets
- Required fee of $100 per scooter
- Support oversight and regulation of the pilot
- Support infrastructure improvements

NCITE Members at Kip’s
Members from the North Central Section of the Institute of Transportation Engineers volunteered their time to exhibit at the Science Museum of Minnesota’s 2019 Civil Engineering Day.

The group provided interactive opportunities for attendees to learn about transportation by operating as a traffic signal, safely traveling through roundabouts, and engaging with ‘life-size’ traffic devices. Overall the NCITE members were impressed with the thoughtful questions that were asked by visitors, and look forward to attending again in the future.

NCITE encourages members to keep an eye out for the next Civil Engineering Day at the Science Museum here: https://www.smm.org/civilengineering

Future Transportation Professionals at the Minnesota Science Museum Civil Engineering Day!
Members of the Younger Member Committee (YMC) kicked off the spring season by volunteering with the Minneapolis Parks Board. On April 20, 2019, the annual Earth Day Cleanup event was held at parks across Minneapolis on the warmest day of the year. Volunteers were provided gloves, bags for trash and recycling, and directions to the clean up sites. The YMC volunteers convened at the Stone Arch Bridge on the north side of the Mississippi River. The group worked alongside Minneapolis residents and cleaned Father Hennepin Bluff, a quirky and expansive park outside of the Saint Anthony Falls Laboratory. In total, YMC members collected 6 bags of trash and recyclables. Their bags were added to nearly 40 others collected along Saint Anthony Main that day. Attendees expressed how cleaning up the park felt gratifying and recognized how their efforts help fellow water resource and environmental engineers that combat the build-up of plastics in our waterways everyday. The YMC will continue pursuing ways to give back to their community, this year and in the years to come.

Tentative 2019 YMC Schedule:
July - NCITE Summer Social
September - Escape Room
October - Gopher Tailgate
November - NCITE Annual Meeting

If you would like to be added to the YMC email list, or know of any new hires/coworkers that would enjoy our events, please send email addresses to
Ellie Lee (elee@alliant-inc.com) or Kristin Carlson (carl4498@umn.edu)
2019 Young Member Committee Bike Tour
Thursday, June 27th, 2019
Meet at Alliant Engineering at 5:00 pm (Leaving at 5:30 pm)
733 S Marquette Ave #700, Minneapolis, MN 55402

You are invited to join the NCITE Young Member Committee (YMC) for a bike tour around Uptown and Downtown Minneapolis. The bike route will be a loop, beginning and ending at Alliant Engineering. The route will include breweries, as well as several pedestrian and bicycle improvement projects recently completed in Minneapolis.

Stops include:
- Lakes & Legend Brewing Company
  - Lyn Lake Brewery
  - Liquor Lyle’s

Please RSVP to Ellie Lee (ellee@alliant-inc.com)
Phase Mode Selection

The state of the practice for FYA operation in Minnesota, is to develop a time-of-day (TOD) schedule that specifies when each of the three phasing modes are to be used for each approach. This is done by collecting turning movement and approach counts, and using these to determine the phasing by time of day, which is a static approach and does not change based on real-time conditions. In areas with variable traffic patterns, including rural and recreational corridors, or where communication is non-functional or non-existent, TOD operation is often not workable or is inefficient. Even on commuter corridors and corridors where volumes are fairly consistent there can be times when there are unexpected spikes in volumes, such as incidents that cause diversion to adjacent corridors. Setting FYA operations based on turning movements may also require extensive manual data collection which can become costly and can be outdated by the time the signals are retimed and FYA decisions are updated.

Solution Development

To address the two items above, the passive approach to determining FYA phase mode and the static FYA indication delay setting, SRF Consulting Group has teamed with the Minnesota Department of Transportation (MnDOT) and developed a comprehensive system that provides dynamic, real-time operation for FYA intersections, both in terms of which left-turn phasing mode to use and how long to delay the start of the FYA indication. The system requires no additional hardware, using only existing loops and/or video detection and added custom logic programming for the Econolite ASC/3 signal controller. The custom logic selects the phasing mode for each approach (i.e. protected only, protected/permissive, or permissive only) by analyzing gaps in the opposing traffic flow to determine if there are available gaps for left-turning vehicles to turn permissively.
The system analyzes the number of gaps every cycle and responds accordingly to provide left-turn phasing that is best suited for the prevailing conditions. The system is also designed so the operator can override the decisions of the system and select protected only operations if desired during certain times of the day.

For the delay of the FYA indication, the system either counts the number of opposing vehicles or analyzes the occupancy of the opposing stop bar detectors. The determination of which method used is based on whether stop bar detectors are present. The system delays the display of the FYA indication based on the number of opposing vehicles counted or the presence of vehicles on the stop bar detectors, up to a preset maximum time which is customizable by intersection and approach.

These systems improve on the current state of the practice by providing FYA operations that are dynamic and are based on the current traffic conditions. They can help agencies improve the efficiency of FYA decision-making by reducing data collection needs and using the existing signal equipment, while promoting enhanced safety by selecting the most appropriate operations based on the current conditions. If you notice FYA operations varying on a daily basis, you may be driving through one of the four pilot intersections around the Twin Cities and MnDOT District 3!
GEOMETRIC DESIGN TECHNICAL COMMITTEE
Committee Chair: Thomas Jantscher - tjantscher@hrgreen.com
Recent Agenda Items: Denny Ehler, SRF – Signalized Intersections.
Future Agenda Items: Will Stein, FHWA & Vic Lund, St. Louis County – Continuous Green T Intersections.
Next Meeting: TBD

INTERSECTION TRAFFIC CONTROL TECHNICAL COMMITTEE
Committee Chair: Philip Kulis - PKulis@srfconsulting.com
Recent Agenda Items: Denny Ehler, SRF – Signalization of Roundabouts.
Future Agenda Items: Vic Lund, St. Louis County – Continuous Green T Intersections.
Next Meeting: TBD

ITS TECHNICAL COMMITTEE
Committee Chair: Todd Olson - toolson@alliant-inc.com
Recent Agenda Items: Test ride in an automated research vehicle by VSI Labs at the State Capitol.
Future Agenda Items: TBD
Next Meeting: TBD

PEDESTRIAN AND TRAFFIC SAFETY TECHNICAL COMMITTEE
Committee Chair: KC Atkins - katkins@tooledesign.com
Recent Agenda Items: Brainstorming future meeting ideas and identifying topic champions.
Future Agenda Items: TBD
Next Meeting: TBD

PLANNING METHODS AND APPLICATIONS TECHNICAL COMMITTEE
Committee Chair: Krista Anderson - kanderson@srfconsulting.com
Recent Agendas Items: Updating of chapter writing, election of new chair people, updates in member activities and on-going projects.
Future Agendas Items: ABM Best Practices.
Next Meeting: TBD at MnDOT Water’s Edge.

TRAFFIC OPERATION AND MAINTENANCE DISCUSSION GROUP
Committee Chair: Adam Bruening - adam.bruening@co.washington.mn.us
Recent Agenda Items: MnDOT Oakdale traffic operations discussion on sign installations. Discussion included square post, slip-base, omni-base, future of U-channel posts, and knee braces.
Future Agenda Items: Round table.
Next Meeting: Wednesday June 5th, Location & Time TBD (First Wednesday of each month).

SIMULATION AND CAPACITY ANALYSIS TECHNICAL COMMITTEE
Committee Chair: Justin Sebens - jsebens@srfconsulting.com
Recent Agenda Items: RDV Systems presentation on lessons learned incorporating VISSIM into the visualization workflow.
Future Agenda Items: TBD
Next Meeting: TBD
Implementing Reduced Conflict Intersections to Reduce Crashes in Heron Lake

Abigail Rieckman, PE | Alliant Engineering Inc.

Trunk Highway (TH) 60 is a rural four-lane divided highway that traverses from the Minnesota-Iowa border east-northeast to the Minnesota-Wisconsin border passing through Heron Lake, MN. Because TH 60 connects Sioux City, Iowa and Mankato, Minnesota it is an important freight corridor with nearly 30% Heavy Commercial Annual Average Daily Traffic (HCAADT).

TH 60 intersects with three County State Aid Highways (CSAH) near Heron Lake. MnDOT District 7 identified the TH 60/CSAH 9 intersection as having a high crash rate, including right-angle (T-bone) crashes that account for 67% of accidents. Two recent right-angle crashes resulted in three fatalities.

Working to Alleviate the Crash Problem
MnDOT attempted to reduce crashes at the intersection by installing LED-Enhanced STOP signs in 2009 and LED-Enhanced YIELD signs in 2015. These low-cost safety enhancements did not reduce crashes. Data showed that the crash rate at the TH 60/CSAH 9 intersection was still high in 2017. In response, and due to its proximity to two other TH 60 intersections, MnDOT District 7 decided to implement a Reduced Conflict Intersection (RCI) at each of the three locations to alleviate the crash problem in Heron Lake.

RCIs Improve Safety
When the project started, there were over 13 RCIs operating in Minnesota on trunk highways. MnDOT completed a study of eight of the existing RCI intersections in 2017 and the findings revealed that fatal and serious injury crashes were eliminated, and right-angle crashes were reduced by 77%.

In Fall 2017, MnDOT enlisted Alliant to develop the final level 1 geometric layout and profile. Ultimately, Alliant also completed the final plans, specifications, and estimate which bid in Spring 2019. Through the preliminary design portion of the project, it was determined that a full RCI at the TH 60/CSAH 43 intersection wouldn’t be necessary as the traffic turning left from TH 60 onto CSAH 43 was negligible. We developed an alternative design that eliminated the direct left turn access from TH 60 at the CSAH 43 intersection with community support. This design still provided full access through the two Median U-Turns (MUTs).
Engaging and Educating the Community

From the beginning of the project in 2017 to the present, MnDOT with Alliant’s assistance, has worked extensively to engage and educate the Heron Lake community on the safety benefits of RCIs. RCIs are relatively new to Minnesota and the nearest RCI to Heron Lake is located over 60 miles away in Marshall, MN. As was experienced with the initial roundabout installations, people are often apprehensive to intersection control types they have not experienced firsthand. This holds true for RCIs.

Community engagement began in Spring 2018 with an open house. MnDOT and Alliant presented design alternatives and received input on the preliminary design that we incorporated into the final design. With final design complete, MnDOT’s outreach efforts continued at community events. Educational materials included a visualization video that Alliant created showing a passenger car and heavy vehicles traversing through the proposed RCI intersections.

Because the community voiced strong concern about the ability of large agriculture equipment to traverse the RCI intersections, we incorporated oversized turf/aggregate shoulder width along the left turn lanes leading to the MUTs to allow for combines and other large equipment to traverse the left turn lanes without encroaching on the through lanes of TH 60. This movement is clearly shown in the video. This project is currently under construction and the last of the planned public engagement activities includes detouring TH 60 traffic for one Saturday and allowing the public to test drive the completed TH 60 & CSAH 9 RCI intersection. This will allow drivers to gain experience and comfort with the new geometry prior to the RCIs being opened to traffic.

Conclusion

We look forward to the continued use of alternative intersection geometry, like RCIs, to improve safety along rural four-lane divided highways like TH 60.
Highway 197 (Paul Bunyan Drive) is one of the most significant corridors in the Bemidji, MN area. It is the gateway to the community, serving up to 16,000 vehicles per day and providing access to countless businesses of all types and sizes. The aging infrastructure and high crash rates, however, demonstrate a need for improvements in a full-corridor vision that can be executed in the next 5 to 8 years. Because the Highway 197 corridor is vital for the community, it was crucial to develop a study that could produce accurate and quantifiable safety and operational data to help stakeholders understand the specific benefits of proposed concepts and alternatives. To develop the right solution, Minnesota Department of Transportation (MnDOT) District 2 and KLJ teamed up to develop a corridor study that used site-specific safety modeling to identify existing and future safety issues with an expanded public engagement process to engage, educate, and evaluate several alternatives that reflect community values and priorities.

**Existing and Future Surrogate Safety Evaluation**

The Highway 197 corridor experiences an average 45 crashes per year, predominantly in critical crash locations along two segments of the corridor. Crashes consist of mostly rear-end and right-angle type collisions caused by the existing 5-lane cross section and 55 full-access locations in a 1.3-miles span of the corridor (nearly three times MnDOT’s recommendation). Instead of relying entirely on previous crash reports and using generalized Crash Modification Factors (CMFs) to assess safety needs, the team used a surrogate safety approach to quantify near-miss conflicts. Microtraffic existing conflict analysis was used to quantify the existing crash potential, validate the microsimulation conflict analysis, and better understand the existing safety deficiencies between signalized intersections and the uncontrolled 5-lane access locations. This approach used video files and VISSIM modeled trajectory data to calibrate a Surrogate Safety Assessment Model (SSAM) and produce relevant statistics.

The conflict analysis identified a high frequency of crossing, rear-end, and lane-change conflicts along the Highway 197 corridor, showing a crash potential greater than that identified in existing crash reports. This analysis was used to better understand how crash potential would change with future conditions. It is predicted that future total conflicts will increase by 60 percent during 2040 weekday operations and up to 120 percent for the 2040 summer recreation peaks, which is associated with only a 25 percent and 40 percent increase in traffic, respectively. This is a much better representation of future crash rates than traditional methods which are based on the assumption that crashes will increase linearly with future traffic volumes.
For alternatives modeling, specific locations were identified that decreased crossing conflicts, which make up the majority of serious-injury type crashes. Traditional methods using CMFs would estimate this change in crashes for a roundabout and right-in right-out access alternative to be anywhere from a 13 percent increase to a 64 percent decrease in crashes. However, detailed SSAM modeling was able to show that total conflicts did increase by the 13 percent rate, while more-serious crossing conflicts decreased by 88 percent. By prioritizing this reduction in serious-injury type conflicts, an alternative that maximized the future safety of the corridor could be confidently selected and demonstrated to project stakeholders and the community.

**Community Supported Process**

While preferred alternatives have the potential to mitigate existing and future safety issues, they also need community support to implement. The corridor study relied on an expanded public engagement process that included a community review panel (comprised of key stakeholders, business leaders, public officials, and residents) to establish community values and priorities that were used to develop, evaluate, and prioritize improvements. Each community review panel meeting included educational and visual components regarding different safety countermeasures, access management, traffic control, etc. and featured related activities, including a value profile exercise; a love-it, like-it, hate-it exercise; and an access management exercise. The access management exercise, in particular, showed that the community members understood the existing safety issues of the corridor and realized that access management was necessary to improve the safety of the corridor. After community review panel engagements, members started to advocate for reduced conflict accesses to the community between major intersections.
In addition to the community review panel, the outreach program included nearly 40 business interviews that were conducted before and after alternatives were discussed, an online survey in which there were 375 respondents, and a public meeting at the Bemidji Home, Sport & Travel Show to engage local and regional travelers alike.

Summary
A data-driven and site-specific safety approach along with immersive public engagement are two ways to take a corridor project to the next level. Being able to educate community and project stakeholders allows members to make important decisions based on community values and helps to evaluate and advocate for the most-appropriate alternative for the community. The Highway 197 Corridor Study has been a huge success in demonstrating how and why access management improvements are necessary. With strong community engagement, residents and business owners are able to understand how the project will benefit Paul Bunyan Drive and the Bemidji community.
City of Burnsville Multi-Modal Study 2018

Kelly Besser, PE | Stonebrooke Engineering

In 2018, Stonebrooke Engineering worked with the City of Burnsville on a multi-modal study and report which focused on utilizing existing roadway widths for the City’s first on-street bike lanes.

The City was seeking a plan that would improve and add to its multi-modal system and provide its residents with safe transportation options to many points of interest throughout the City, including parks, schools, restaurants, transit and retail destinations. The City understands the growing need for these transportation amenities as people are increasingly seeking healthier lifestyles for many reasons; better physical health, financial benefits, and a greater sense of community and connectivity in their neighborhoods and surrounding areas.

The existing City trail and shared use path system provides many routes, but there are some gaps within the system that have the potential to be connected by using dedicated on-street and shared use bike lanes. Existing street-paved widths can be utilized for proposed on-street and shared bike lanes to make these connections and potentially close loops for bicyclists within the system. While many riders would agree that off-street facilities are the most comfortable to use, several factors limit agencies from providing these continuously throughout their systems. The City of Burnsville and Stonebrooke Engineering considered the existing transportation infrastructure and vehicular transportation needs, to provide a safe and balanced system that would meet the expectations and needs of all users.

Stonebrooke developed a study that achieved the end goals of:

- Evaluating segments of roadway within the existing City system for potential on-street and shared use bike lanes based on existing roadway characteristics, including existing roadway, shoulder and parking lane widths, traffic volumes, posted speeds, crash history, presence of adjacent off-road facilities, proximity to points of interest and ties to other jurisdictions’ systems.
- Identifying a public outreach process that will also help identify potential implementation locations.
- Recommending and ranking, with input from the City and the public, potential options for bike lane implementation locations, which the City can seamlessly incorporate into its system.
- Providing information and details for design and construction elements.
- Providing a cost estimate to implement the recommended segments.

(Continued on page 20)
Stonebrooke collected field data, used City infrastructure GIS information, analyzed traffic data and considered other jurisdictions’ network maps and master plans to determine locations where on-street bike lanes would be feasible and best utilized within the existing system. Stonebrooke and the City of Burnsville also worked together on a public involvement process that included a project website with questionnaires and interactive maps for comments, an open house, and a presentation at a City Council work session.

During an open house for the project, we had the opportunity to talk with many passionate bicyclists and community members, who provided valuable information on how they use the existing facilities and how they felt the system could be improved. While some thought on-street bike lanes were a great idea, others were downright opposed. The City of Burnsville however, wanted to engage in forward thinking by implementing new ideas that have proven successful in other communities. They hoped this project would encourage community members to think twice about getting in their cars when they could instead use the facilities provided to get where they needed to go, or to simply enjoy a day at the park.

Through the public outreach effort and additional feedback from the City’s project management team, we determined the highest priority locations to make on-street bike lane connections within the City. We provided cost estimates for implementation with upcoming City roadway projects, as well as for stand-alone projects. Due to the teamwork of everyone involved, the City plans on implementing these bike lanes within two projects during the 2019 construction season.

Stonebrooke is proud to have been a part of this unique and exciting transition for the City of Burnsville and we believe it will be extremely beneficial to residents and community members alike.
ITE LOL

UPCOMING AND RECENTLY-ACHIEVED SELF-DRIVING CAR MILESTONES

- Automatic Emergency Braking
- Highway Lane-Keeping
- Self-Parking
- Full Highway Autonomy
- Full Trips with No Input from Driver
- Full Trips by Empty Cars
- Self-Refueling of Empty Cars
- An Empty Car Wandering the Highways for Months or Years Until Someone Notices the Credit Card Fuel Charges
- Cars That Read Other Cars’ Bumper Stickers Before Deciding Whether to Cut Them Off
- Autonomous Engine Revving at Red Lights
- Self-Loathing Cars
- Autonomous Canyon Jumping
- Cars Capable of Arguing About the Trolley Problem on Facebook

Source: https://xkcd.com/
New Members

Cole Arvidson - University of MN - Duluth
Cade Botten - Hennepin County, Public Works
Derek Sunstrom - Hennepin County, Public Works
Marielle Kongolo Yumba - SDSU
Dena King - Bolton & Menk
Adam Vincent Capets - Stantec
Kevin Olm - SRF
Dr. Do Hyun Nam - WSB

Moves

Rick E. Laughlin – HR Green, Inc, formerly with HDR
Srivatsan Desikan – SRF formerly Texas A & M
Mitchell R. Bartelt – Washington County formerly MnDOT
Scott Poska – Alliant Engineering, Inc., formerly City Of Minneapolis
Zach Grapentine – Interstate Engineering, formerly EST Inc.

Michael Howard Schrader – Independent, formerly MSU, Mankato

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