SHIFT 2020 Workgroup – Meeting Minutes

9/12/2018 - Rm C117 - 9:30 -12:30

Attendees:

Last Name	First Name	Representing
Allen	Charlie	KYTC – Highway District Office 4
Asher	Jill	KYTC - CO Highway Design
Blackburn	Jason	KYTC – Highway District Office 10
Chaney	Larry	KIPDA
Chen	Mei	KTC
Courtney	Stacey	Purchase ADD
David	Joey	Lex MPO
De Witte	Steve	KYTC – CO Planning
Drake	Steven	KYTC – CO Planning
Goodwin	Ezekiel	KYTC CO Traffic Operations
Green	Eric	KTC
Harding	Ed	KYTC OIT EDSB
Hulker	Daniel	KYTC - CO Planning
Jones	Travis	KYTC - CO Program Management
Lightfoot	Telma	KYTC CO Traffic Operations
Loyselle	Maridely	KYTC - CO Planning
McKenzie	Shane	KYTC – CO Planning
Mills	Deanna	KYTC – CO Planning
Moore	John	KYTC - CO
Norman	Anthony	KYTC – DEA/Planning
Pelfrey	Mikael	KYTC - CO Planning
Quarles	Ramsey	KYTC - CO Planning
Rahman	Fatima	UK
Reynolds	Jonathan	KYTC – CO Planning
Rogers	Josh	KYTC - CO Maintenance
Ross	Steve	KYTC - CO Planning
Shive	Chad	KYTC - CO Maintenance
Skaggs	Mike	Lincoln Trail ADD and Elizabethtown MPO
Souleyrette	Reg	KTC
Spencer	Amanda	KYTC- CO Planning
Staats	William	UK-KTC
Tanzen	Riana	UK
Thelen	Jeff	Northern KY ADD
Thompson	Travis	KYTC – Highway District Office 5
Thomson	Scott	KYTC - CO Planning
Vaughan	Eileen	KYTC – CO Planning
Vaughn	Michael	KYTC – CO HSIP
Zhang	Xu	KTC

Summary of issues for further consideration

SHIFT2020 Safety Component Technical Workgroup
- Defining interchange and intersection influences

SHIFT2020 Congestion Component Technical Workgroup
- Further consideration of weighting congestion (expectations of congestion) on the functional classes

Meeting Minutes

SHIFT 2020 Workgroup: Overview – by Eileen Vaughan
- Began with a recap of the previous steps, an overview of what we are doing today, and the steps after today's meeting including:
  - Discussed scoring a sample list of projects
  - September 26, 2018, meeting will review the new formula and make recommendations
    - Note: this meeting is limited to Workgroup members, KTC will be available to take a call on their Safety and Congestion measure recommendations
  - October 19, 2018, is a tentative meeting date for decisions, tweaks, further define formula recommendations
  - Survey link will be sent out to Workgroup members
- Decision Lens
  - All SYP data will be imported into Decision Lens during the development of the draft plan in the fall.
  - Survey option in Decision Lens: asks which is more important (built-in function), easy to use, Amanda did this over the phone, districts may use his function in the future to select their priorities

The presentation notes below will only be information in addition to the power point presentations.
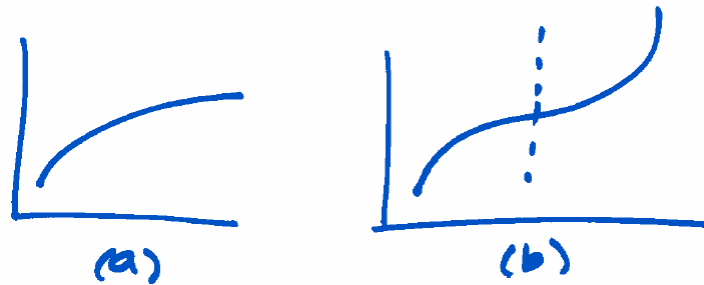
Presentation: SHIFT2020 Technical Workgroup – Safety component
Safety Technical Workgroup: Kentucky Transportation Center – Reg Souleyrette, presenter
- PCR: potential to reduce crashes to the <u>average</u>, not zero
- New Ranking Method (PPT slide 12): we don't have statistical significance for fatalities (Ks), The ranking method is for all crashes.
- In the example slides: the PCR driver is the length, it may say there are many crashes, doesn't speak to the ability to reduce crashes
- PCR only looks at safety, not costs or other benefits
- Question from Steve De Witte: How often will the SPFs need to be updated? Eric Green: SPFs should be good for many years with calibration, 5 to 10 years. Reg Souleyrette added that the SPFs are based on 5 years of data, which has to be looked at too with engineering judgement.
- Comment from Amanda: in regards to the Martin County example, yes it's dangerous, but all similar roads are.

- William Staats: Crashes weren't spread out evenly, mostly at spots; looking at spots, PCR will shoot up; doesn't speak to severity, could convert PCR to a Property Damage Only (PDO) equivalent.
- Eric Green: there are SPFs (not KY-specific though) for Ks, ABC, and PDOs. William: may not be statistically significant
- Mike Vaughn: SPFs for SHIFT are very broad; KTC has developed very specific SPFs for HSIP (run off the road, for example); PCRs: ALL, K+A, ABC; usually K+A dominate and HSIP uses ALL and ABC as tie breakers; other states reduce KABCO to a PDO equivalent, similar to ESALs (Equivalent Single Axle Loads); both methods are valid – just different ways to look at the data; can't zoom in on the Ks due to statistical significance (there's not a large/robust sample size), must consider risk factor and adjust
- Jill Asher to Mike Vaughn: can you adjust KAs and adjust for DUIs, etc? Mike Vaughn: discussion on DUIs and counter measures, each improvement has its limits
- Mike Vaughn: Planning level SPFs have KY-specific Safety Benefit Factors (SBFs) associated with them; the SBFs are split by KAB and CO; HSIP weights on KAB vs CO
- Reg Souleyrette: the SHIFT safety score can be 15% x rank or 15% x PCR
- Anthony Norman: what are the pros and cons with this method?
  - Pros: can be tweaked over time, maintaining (refining?) SPFs, KTC will equip KYTC with tools for self-tweaking
  - Cons: how to explaining the method, still a lot of research going on, PCR is still not perfect
- Travis Thompson: has KTC developed the influence for interchanges?
  - Haven't developed a method yet, currently a polygon needs to be drawn or define the influence manually, this is a good questions for intersections also, KTC can look at this question for the September 26, 2018, meeting
- John Moore, Steve De Witte, Reg Souleyrette: we have SPFs for every road type and AFs for rural 2-lane roadways, AFs for everything else should be available by September 26.
- Amanda Spencer: please discuss PCRs on new routes (new routes don't have crashes to reduce);
  - Mike Vaughn: new route reduces AADT on the old routes so crash performance on the system will be different
  - Steve De Witte: it is similar to CCRF in that the rank points out increased crashes but doesn't say what should be done
  - Mike Vaughn: agrees that a higher rank points out existing problems, cost/benefit ratios point to the highest benefits
  - Thomas Witt: might under estimate because a new route draws AADT from many routes
  - Mike Vaughn: there will still be crashes on the old routes plus crashes on the new routes; exposure changes – the more miles we're adding the more crashes we will get, comes to a net neutral; rank the roads we have (ie don't let perfect get in the way of good)
  - Jason Blackburn: discuss the formula/function of AADT (10 vpd vs 10,000 vpd); Reg Souleyrette: statistical regression model – which curve fits best, "a" and "b", 3 steps: (1) determine best fit line/model, (2) AF from the base condition (ie rural 2-lanes, 9' lanes, 3' shoulders), (3) determine CMFs; Eric Green: Jason is describing a bias, sure

plots take care of this issues which can be spotted; in (b) below, there can be 2 models, doesn't happen very often

Presentation: SHIFT2020 Technical Workgroup – Congestion component

Congestion Technical Workgroup: Kentucky Transportation Center – Mei Chen, presenter

- From HCM: service deteriorates at a relatively low demand flow rate, most 2 lane highways are upgraded prior to reaching capacity
- Started research in January: systemic identification of needs that no one has caught yet and a measurement of the need
- Patterns of congestion: is it reasonable to only use peak hour functions which is the old method
- New approach: use speed data, and where speed data is not available use the HERS model
- Adequacy of speed data: bootstrapping method, gray area is the error distribution, between 20% and 1% until we get a margin of error that I acceptable – Minimum Temporal Coverage, for freeways: 8%
- Determining reference speed: what is the line between congested and not congested? Different facility types: nighttime on rural roadways – can't see so you drive slower; if 85th percentile is 75 mph and you're going 73, is that congested? therefore capped at speed limit
- PM peak speed validation: freeway model is underestimating speed, model includes collector/distributer volumes
- Ramps: missing some ramp volumes and alignment features
- Travis Thompson: the speed data is aggregated: (all lengths)/(all speeds); speed data can show localized speeds; longer lengths will show average speed
- Jill Asher, John Moore: is the proposed scoring measure (VHD) weighing interstate expectations the same as a state route? Mei Chen: yes, haven't gotten to weighting yet.
- John Moore: are the examples from speed data or HERS-ST? Mei Chen: all of the examples are from speed data.
- Jason Blackburn: should speed be the measure of congestion? Older vs younger drivers, curvature of rural roadway dictates speed
- John Moore: appears that lower functional class roads might be overstating congestion? Maybe look at the lower percentile ranks. Mei Chen: may need to look at a sliding scale comparing functional classes
- Eileen Vaughan: weighing functional class was looked at but went back to VHD; could go back and take another look
- John Moore: KY 84 example: 5am to 6pm: no dip, geometry-related, use tails to cap our reference speed? Scaling bad data – not congested
- Jill Asher: US 31/Hardin County example: 40 mph speed – not bad, expected
- Jason Blackburn: length is a factor because it's travel time

- John Moore: longer projects accumulate travel time over miles/length
- Mei Chen: also looked at delay per mile, but intersections quickly rise to the top
- Daniel Hulker and Steve De Witte: discussion of data points vs segments
- Mei Chen: shorter segments – hourly speed, KTC aggregated this hourly speed to get the 85th percentile, the aggregated for the whole project
- Jason Blackburn: in Mei Chen's opinion, which is more accurate? Yes, expands beyond peak hour, but no congestion threshold therefore need to strike a balance; fix spots, thresholds change, draws in more traffic – depends; rural roads: signed for 55 mph but never get there because they're geometrically constrained
- John Moore: need to dial in reference speed of non-rural roadways; better than VSF but still not all the way to where we need to be
- Jason Blackburn: so is there a formula? Mei Chen: yes, involves program, data, and aggregation
- Jill Asher: if showing delay and capacity or AADT is low -- shows it's not congestion but maybe geometric issue, maybe a flag that kicks it out

SHIFT 2020 Workgroup: Recap – by Eileen Vaughan
Eileen ended with a summary of the next steps