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TO: Mayor & Council
FROM: Mitch Wasserman
DATE: August 5, 2016
RE: **STUDY SESSION – Nuts & Bolts**

To help guide the study session discussions, the staff suggests the group reviews the most recent traffic study and current road system condition information, articulates the problem(s) it wants to solve/manage, agrees on a set of principles associated with the problem and ultimately picks or begins to sift out some ideas it would like to see the City use to address the problem.

To help the discussion get started, the staff has developed the information below:

Current Condition:

Appendix A of the Traffic Study includes traffic count data taken for the following locations:

84th/520 Interchange:

Peak traffic hour: 4:45 pm – 5:45 pm

Bellevue Way/520 WB on-ramp:

Peak traffic hour: 4:30 pm – 5:30 pm

Bellevue Way/520 EB off-ramp:

Peak traffic hour: 4:45 pm – 5:45 pm

84th/24th Intersection

Peak traffic hour: 4:00 pm – 5:00 pm

84th/12th Intersection

Peak traffic hour: 4:00 pm – 5:00 pm

92nd/24th Intersection

Peak traffic hour: 4:45 pm – 5:45 pm

92nd/Pts Dr

Peak traffic hour: 4:00 pm – 5:00 pm

100th/24th Intersection

Peak traffic hour: 4:45 pm – 5:45 pm

92nd/8th

Peak traffic hour: 5:00 pm – 6:00 pm

The traffic counts, along with information about an intersection's level of service (p.10 of the Traffic Study) provides a good quantitative start to understand the current condition of the road system. The Introduction of the Traffic Study summarizes the current condition:

“When SR 520 is congested, regional traffic diverts onto the local city's street systems and significantly alters travel conditions in those neighborhoods. The 84th Avenue NE approach to SR 520 has been observed as being the most impacted city street. The purpose of this traffic management plan is to better understand this regional traffic diversion, which can vary from day-to-day, and then to develop local solutions to manage this traffic that impacts the safety and livability of these communities.”

Problems:

Cut Through Traffic

Commuters breaking traffic laws (Speeding – Stop Signs – No Left Turns...)

Policy Principle Ideas:

What are we trying to do and why? The more focused our objectives, the easier they will be to implement, manage and explain. This topic covers a number of possible and somewhat interrelated objectives that could include one or more of the following. This list is used in Bellevue to help focus its neighborhood traffic management program:

Manage Traffic Volume:

- Reduce the number of cut-through vehicles on a residential street

Improve Pedestrian and Bicycle Safety

- Create a more inviting and safer place to walk and bike

Educate the Community

- Create awareness around traffic safety through targeted education and outreach

Manage Neighborhood Parking

- Address parking from businesses and schools that spillover into neighborhoods

Heighten School Zone Awareness

- Heighten awareness and traffic safety in and around elementary school zones

Other objectives could include reducing truck traffic, reducing noise, vibration and air pollution, reducing accidents.

The following set of principles is the staff's attempt to share something we believe the Council is looking for and can use as a starting point for further discussion:

Draft – Clyde Hill Cut Through Traffic Policy Principles:

1. Reduce Cut through Traffic

Focus on making it harder for traffic to cut through CH between 4pm to 7pm (m to f)

- 70% to 80% of those using CH streets at this time are commuters going to SR 520
- Communicate policy to the 20%-30% so they know how to adapt their travel plans

2. Increase Police Department visibility between 4pm to 7pm (m to f)

- Message: Don't break traffic laws or commit crimes in CH...you will be caught
- Make cutting through CH a higher risk if commuters disregard speed/other laws

3. Communicate progress of any strategy to Council/community

- Also to evaluate effectiveness – when to change/stop
- Current perception may not be the actual reality...share information for more accurate perceptions and tips to keep crime low

Ideas to Achieve Goals:

The following is a list of over 50 ideas generated by the staff. There are other ideas out there that the staff did not think of that can also be included and discussed. Not all of these ideas are “good” ideas. Many come with high costs or associated implementation problems. However, all ideas are presented at this time for further discussion, which could include quickly eliminating them, spin off thoughts or additional conversation about their cost/benefit or implementation feasibility. These ideas are grouped into cut-through traffic management ideas and traffic calming or speeding related ideas...the ideas are *not* presented in any order of preference.



Cut Through Traffic Management Ideas:

24th/84th Traffic Signal Related:

New traffic signal @ 24th/84th

- Give less priority to NB traffic between 4 to 7pm
- Flashing red signal @ 20th/84th...only turn on between 4 to 7pm

Red light camera @ 24th/84th

- Can be real and operating or fake

Install curb or “skinny permanent cones” between lanes on NB 84th just north of 24th

24th Ideas

Install new traffic signals at 24th/92nd

Install new traffic signals at 24th/98th

Install no right turn on red sign at WB 24th to NB 84th

Add more "traffic calming efforts" on 24th

- Need specific ideas/locations

12th/84th Ideas

Eliminate or restrict “facilitated” right turn lane from WB 12th to NB 84th

- require them to make a rt turn at the intersection
- make existing R-turn on to 84th for HOV/transit only

92nd Avenue Related:

4-way stop or flashing red signal at 92nd/20th

- only turn flashing on between 4 to 7pm

4-way stop or flashing red signal at 92nd/14th

- only turn flashing on between 4 to 7pm

Add more "traffic calming efforts" on 92nd

- Need specific ideas/locations

Reduce lane width on 92nd (24th to 12th) from 12+’ to 11’ lanes

- Use wider gore line stripes (4” to 6”)

Traffic Signal @ 24th/Bellevue Way

Give less time/priority to WB left turners

Put signals on 4-way flash (4 to 7pm)

Bellevue Assisted Projects

Work w/Bellevue to communicate Bellevue Way as a good/better alternative

- As part of their TDM plan?

Install additional guide signs pointing folks to SR 520 via Bellevue Way

- On Bellevue Way @ 24th

Work w/Bellevue to get \$ for improvements where they generate the cut through traffic

- develop a location list

92nd/Pts Dr Ideas

Install no left turn sign (4pm to 7pm M-F) at NB 92nd to WB Pts Dr

92nd/Pts Dr. Intersection

- Make into a 5-way stop intersection
- Install a Flashing signal
- Install a new Traffic signal
- Install a new L-turn lane from SB 92nd to Pts Dr.
- Turn intersection into a Traffic circle

Increase time on ramp meter at 92nd on-ramp

86th/12th Ideas

Close 86th @ 12th - In conjunction with any other efforts that make this route a new short cut. Some closure ideas include:

- Cul-de-sac
- Temp closure in PM only
- Allow out but not in.
- No right hand turns from 4 to 7

SR 520 Related Ideas

Close the 84th on-ramp to SR 520

- Only close between 4 to 7pm, m-f

Increase time on 84th on-ramp metering

- Make Bellevue Way a quicker alternative

Close the 92nd on-ramp to SR 520

- Only close between 4 to 7pm, m-f

Increase time on 92nd on-ramp metering

- Make Bellevue Way a quicker alternative

Non Location Specific Ideas

Organize "chaos teams" to report false information to WAZE and other traffic apps

- How to out-smart the smart apps...needs others to confirm false information
- Have PD part of this too

Use the construction of the 84/24 Phase II project to help re-train commuters

- schedule that work strategically

Do nothing right now...wait for the completion of the west side 520 improvements

What Is Traffic Calming?

Traffic calming has become a more common municipal term to describe techniques used to help slow traffic down or better manage traffic. The term means something different from city to city but is usually understood to mean a range of methods that attempt to physically change the look/feel of the road and the adjacent “road environment” to make the driver a little less comfortable so they will slow down. A number of other benefits are known to be associated with traffic calming that include enhanced aesthetics, increased safety and less pollution. These methods can also help to frustrate cut through traffic by slowing down drivers but traffic calming is not usually intended as the sole method for this objective. The most effective traffic calming plans include three main elements: engineering, education and enforcement.

Traffic calming can be tricky to talk about unless you get specific. For example, one traffic calming method is the use of “speed bumps”. A speed bump could mean a speed hump, speed table, raised crosswalk, raised intersection, textured pavement, speed lump, speed cushion or a split speed hump...I probably missed a few as well. It's just important for us to know that the topic comes with a generally accepted broad set of terms/methods but does not come with a defined set of specific standards used to implement these ideas. It is up to each community to decide the right mix of ideas and the best way to implement those ideas.

We did not outline all the possible traffic calming ideas below but have attached a few articles that help to explain what traffic calming could look like, what it is intended to do, its effectiveness in other cities and some older cost estimates. The following references are intended to share information about:

- Kirkland Article – Good traffic calming pros/cons
- TDM Encyclopedia – shows effectiveness of technique and 2011 cost estimates
- FHWA Traffic Calming Article – p. 7 Bellevue's speed hump evaluation
- Bellevue Traffic Study Guidelines – Describes their traffic management program and the benefits of their techniques

In general, when we talk about traffic calming, the following methods are envisioned:

Lane Narrowing

- Intended to slow traffic down...can be done by adding bike lanes, bollards, planters, sidewalks

Curb Extensions (bulb out or neck down)

- Narrows the roadway width, usually in conjunction with a pedestrian crossing

Choker

- Narrows the road down to a single lane

Lane Reduction (Road Diet)

- Reduce amount of pavement...driving lanes

Pedestrian Refuges

- Can be small islands in the middle of the street that increase ped safety but also act to reduce the lane width
- Can also be used with curb extensions

Textured Pavement

- A road can be stamped or colored to help it stand out and highlight things like a mid-block crosswalk or the entrance to a residential neighborhood

Chicanes

- A set of bump outs or road curves that force traffic to slow down

Blocking or Restricting Access

- There are many ways to accomplish this from signs to physical islands or cul-de-sacs

Speed Bumps

- Generally referred to as meaning the taller, more compact road impediments that require slower speeds or result in more violent reactions

Speed Humps

- A little lower and elongated speed bump...less aggressive

Speed Cushion (speed tables)

- Longer and flatter bumps in the road...can also be engineered to allow wider emergency vehicles to straddle them

Raised Crosswalks

- A crosswalk highlighted with textured/colored pavement and a speed cushion

Traffic Circles

- Smaller roundabouts as islands in the middle of residential intersections

Roundabouts

- You know these...

Traffic Calming or Speeding Related Ideas:

Use additional traffic calming techniques to slow down traffic:

- Lane Narrowing
- Landscaping next to road
- Pedestrian refuges/Curb Extensions at key intersections
- Raised Crosswalks/Speed humps in conjunction with mid-block pedestrian crossings

Install solar **speed signs that say “slow down”**

- Develop a location list

Install more/larger speed signs

- Develop a location list

Paint speed limit on roads

- Develop a location list

Police Related Ideas:

Directed Police Patrols

- Extra focus between hours of 4 to 7pm...be very visible to commuters
- Strategic focus for speeders...develop a location list
- Strategic focus for stop sign infractions...develop a location list
- Strategic focus for no left turns...develop a location list

Strategic deployment of speed trailer and traffic counters

- Amend current location list?
- Use to collect and communicate speeding and volume facts

Ideas to Evaluate How It's Working:

Collect before/during/after traffic volume/speed data

- Develop list/schedule...can't do it all at once
- Focus on cut thru problems first?