CITY OF TONKA BAY
ITEM 8B

Memo

To: Honorable Mayor and City Council

From: Joe Kohlmann, City Administrator

Date: September 9th, 2014

Re: Birch Bluff Road

Staff began fact finding to outline potential action steps to investigate the possibilities on Birch Bluff Road. The meeting minutes of July 24th, 2014 seem to indicate that it was generally perceived that the residents are facing a volume issue as opposed to a speeding issue.

Staff reviewed the street classifications in the City Code *(section attached)* and found the definition of "Local Street" (the smallest classification by City Code) states:

Street – Local. Local streets provide direct land access within neighborhoods and other homogeneous land use areas and provide connections to collector streets. Parking is usually unrestricted, the posted speed limit is 30 m.p.h. or less, and streets are two lanes wide plus space for parking. Traffic control is most likely to involve strategies such as stop signs, cul-de-sacs, and diverters. Local streets typically carry about 1,000 vehicles or less per day. Residential streets typically carry about ten (10) trips per household per day.

**Attached are Bloomington's and Princeton's prohibitions and/or recommendations against dead-end streets and cul-de-sacs longer than 600 ft.*

The SLMPD conducted a 10-day and 7-day Traffic Survey for Birch Bluff Road. This included collecting data on vehicles traveling each direction on Birch Bluff Road (southwest and northeast). The total 10-day traffic count for vehicles traveling southwest was **4,903**. The total 7-day traffic count for vehicles traveling northeast was **1,859**. The combined total traffic volume in each direction is **6,762**. The traffic volume for southwest travel was 49% of the defined 1,000 cars per day. The northeast volume was 26% of the defined 1,000 vehicles per day.

In addition, there appears to be 34 addresses on Birch Bluff Road. Per City Code citation and *attached* supporting evidence, each home generates 10 vehicle trips per day. With this data benchmark, Birch Bluff residents are presumed to account for **3,400** of the total **6,762** vehicle count or **50%**.

In relation to speeding, it should be noted that Staff has previously provided an interpretation that calculates the following:

The same data set could also be interpreted to read:
6,762 total vehicles measured on Birch Bluff:
1-25 mph = 92% of vehicles
26+ mph = 8% of vehicles

Since the traffic count currently falls under the 1,000 vehicles per day threshold set by City Code, the City would need to consider amending the City Code; the street appears adequate to handle the current volume.

In relation to speed bumps, Staff has located information from the City of Jordan on why they prohibit or discourage speed bumps *(attachment included)*. Reasons include but are not limited to:

1) "…tests of various experimental designs have demonstrated the physical inability of a speed bump to control all types of lightweight and heavyweight vehicles successfully".
2) "The Courts have held public agencies liable for personal injuries resulting from faulty design".
3) "Increased hazard to the unwary; challenges to the daredevils; disruption of the movement of both emergency and service vehicles; and undesirable increase in noise have caused speed bumps to be officially rejected as a standard traffic control device on public streets and alleys".

Attached is the City Code Section defining Streets
Attached are Bloomington's and Princeton's regulations on dead-ends
Attached are the Birch Bluff Road Traffic Surveys by SLMPD
Attached is the City of Apple Valley's support for 10 "trips" per household
Attached is the City of Jordan's information on Speed Bumps

Council Action Requested:
Review and discuss. Provide Staff with direction on how to proceed with Birch Bluff Road and Pleasant Avenue.

and store solar energy for useful purposes including heating and cooling of buildings, domestic water heating, electric power generation and other energy using processes.

Stacking Area (Magazine Space). That area which allows for a line of automobiles in such instances as drive-up tellers and other vehicle service areas.

Story. That portion of a building included beneath the upper surface of a floor and upper surface of floor next above, except that the top-most story shall be that portion of a building included between the upper surface of the top-most floor and the ceiling or roof above. If the finished floor level directly above a basement or cellar, or unused under-floor space is more than six (6) feet above average ground level as defined herein for more than fifty (50) percent of the total perimeter or is more than twelve (12) feet above average ground level as defined herein at any point, such basement or unused under-floor space shall be considered as a story.

Story, Half. That portion of a building under a gable, hip or gambrel roof, the wall plates of which, on at least two (2) opposite exterior walls, are not more than two (2) feet above the floor of such story, and basements where less than one-half (1/2) of the floor to ceiling height is below the average of the highest and lowest point of that portion of the lot covered by the building.

Street. A public right-of-way for vehicular traffic, whether designated as a highway, thoroughfare, arterial, parkway, collector, through-way, road, avenue, boulevard, lane, place, drive, court or otherwise designated, which has been dedicated or deeded to the public for public use and which affords principal means of access to abutting property.

Street – Collector. Collector roadways connect neighborhood within and between subregions and distribute traffic between arterials and local streets. Parking is restricted as necessary and posted speed limits typically range between 30 and 45 m.p.h. Collector streets typically should have two driving lanes, two parking lanes, and a bicycle/pedestrian surface if necessary. Collector streets are typically spaced 0.25 – 1.0 miles apart. Traffic control typically involves local street stops, four-way stops, and some traffic signals. Collectors typically carry 1,000 – 15,000 vehicles per day.

Street – Local. Local streets provide direct land access within neighborhoods and other homogeneous land use areas and provide connections to collector streets. Parking is usually unrestricted, the posted speed limit is 30 m.p.h. or less, and streets are two lanes wide plus space for parking. Traffic control is most likely to involve strategies such

as stop signs, cul-de-sacs, and diverters. Local streets typically carry about 1,000 vehicles or less per day. Residential streets typically carry about ten (10) trips per household per day.

Street – Minor Arterial. Minor arterials connect adjacent subregions and activity centers within subregions. Land access is usually restricted and trips are somewhat longer than on collector streets. Parking is often restricted and the posted speed limit is 35-45 m.p.h. Width is dependent on the volume carried. Minor arterials are typically spaced 0.5 – 2.0 miles apart. Traffic control typically includes traffic signal timing and land access spacing.

Street Frontage. The proximity of a parcel of land to one (1) or more streets. An interior lot has one (1) street frontage and a corner lot has two (2) frontages.

Street – Intermediate Arterial. Intermediate arterials function at a level between the minor arterial and major arterial categories. Intermediate arterials are not limited access facilities but serve primarily trips between rather than within subregions.

Street Pavement. The wearing or exposed surface of a street or roadway used by vehicular traffic.

Street – Principal (Major) Arterial. Major arterials provide a high level of mobility between subregions, serving medium to long distance trips. Principal arterials are grade separated or have high capacity controlled at-grade intersections. No parking is permitted; the posted speed limit is typically 40-55 m.p.h., and traffic volumes range from 10,000 – 50,000 ADT. Major arterials are typically spaced one to three miles apart.

Street Width. The shortest distance between the lines delineating the right-of-way of a street.

Structure. Anything which is built, constructed or erected; an edifice or building of any kind; or any piece of work artificially built up and/or composed of parts joined together in some definite manner whether temporary or permanent in character. Among other things, structures include buildings, manufactured homes, walls, fences, swimming pools, billboards and poster panels.

Structural Alteration. Any change in the supporting members of a building, such as bearing walls, column, beams, girders, or foundations.

Surveyor. A land surveyor registered under Minnesota State laws.

Does the City Code allow dead-end streets or cul-de-sacs?

The City Code limits the length of dead-end streets or cul-de-sacs to 600 feet. In addition, cul-de-sacs longer than 300 feet must have a mid-block turn around. The existing east and west segments of Overlook Drive are legally nonconforming (the road right-of-way from the west is approximately 800 feet, and the right-of-way from the east is approximately 1,400 feet). Any increase in length would require a variance from City Code standards.

Why does the City Code prohibit long dead-end streets or cul-de-sacs?

Public safety reasons to limit the length and therefore number of residents living on dead-end streets include:

- With only one way in and out, downed trees or vehicle accidents can block emergency vehicle access for remaining residents.
- Response vehicles staging to respond to calls can restrict access to the neighborhood for other response vehicles during an emergency.
- Addressing street segments with the same name that are not connected, can create response issues and increase response times.
- Insurance Services Organization (ISO) ratings can increase property owners insurance rates based on number and length of cul-de-sacs.
- Residents have expectations for quick response times from emergency responders. Additional access points generally shorten response times.

11. Where a subdivision abuts or contains an existing or planned major thoroughfare of a railroad right-of-way, a street approximately paralleled to and on each side of such thoroughfare and right-of-way may be required for adequate protection of residential properties and separation of through and local traffic. Such service streets shall be located to a distance from the major thoroughfare or railroad right-of-way suitable for the appropriate use of the intervening land, as for park purposes in residential districts, or for commercial and industrial purposes in appropriate districts. Such distances shall also be determined with due regard for the requirements of approach grades and future grade separations.

12. The street arrangement shall not be such as to cause hardship to owners or adjoining property in platting their own land and providing convenient access to it.

13. Cul-de-sac Streets

    Cul-de-sac streets, permanently designed as such, shall be discouraged. If allowed by Council action, such cul-de-sac shall not exceed six hundred (600) feet in length, except as variances are permitted. Such a variance may be granted if it can be clearly shown that by reason of unfavorable land form, or the irregular shape of the land from which the subdivision is being made, a normal street pattern cannot be established, or that land would be wasted by not granting such a variance.

    Unless future extension is clearly impractical or undesirable, the turnaround right-of-way shall be placed adjacent to a property line and a right-of-way of the same width as the street shall be carried to said property line in such a way as to permit future extension of the street into the adjoining tract. At such time as such a street is extended, the acreage covered by the turnaround outside the boundaries of the extended street shall revert in ownership to the property owner fronting on the temporary turnaround.

14. Street Design

    Minimum right-of-way widths and pavement widths (face to face of curb) for each type of public street or road shall be as follows:

Type of Street	Right-of-Way Width	Roadway Width
Thoroughfare (e.g. T.H. 169)	120 feet	As determined by traffic needs
Collector Street (e.g. T.H. 95)	80 feet	44 feet

Traffic Survey Summary

Location: Birch Bluff Road
Start Date: 06-14-13
End Date: 06-21-13

Zone: Residential
Start Time: 12:18:52
End Time: 10:51:27
Travel Direction: NE

Speed	1 - 19	20 - 21	22 - 23	24 - 25	26 - 27	28 - 29	30 - 31	32 - 33	34 - 35	36 - 37	38 - 39	40 - 999
Volume	875	277	271	248	94	28	10	2	1	0	1	52
% of Total	47.06%	14.9%	14.57%	13.34%	5.05%	1.5%	0.53%	0.1%	0.05%	0%	0.05%	2.79%
									Total Vehicles: 1859			

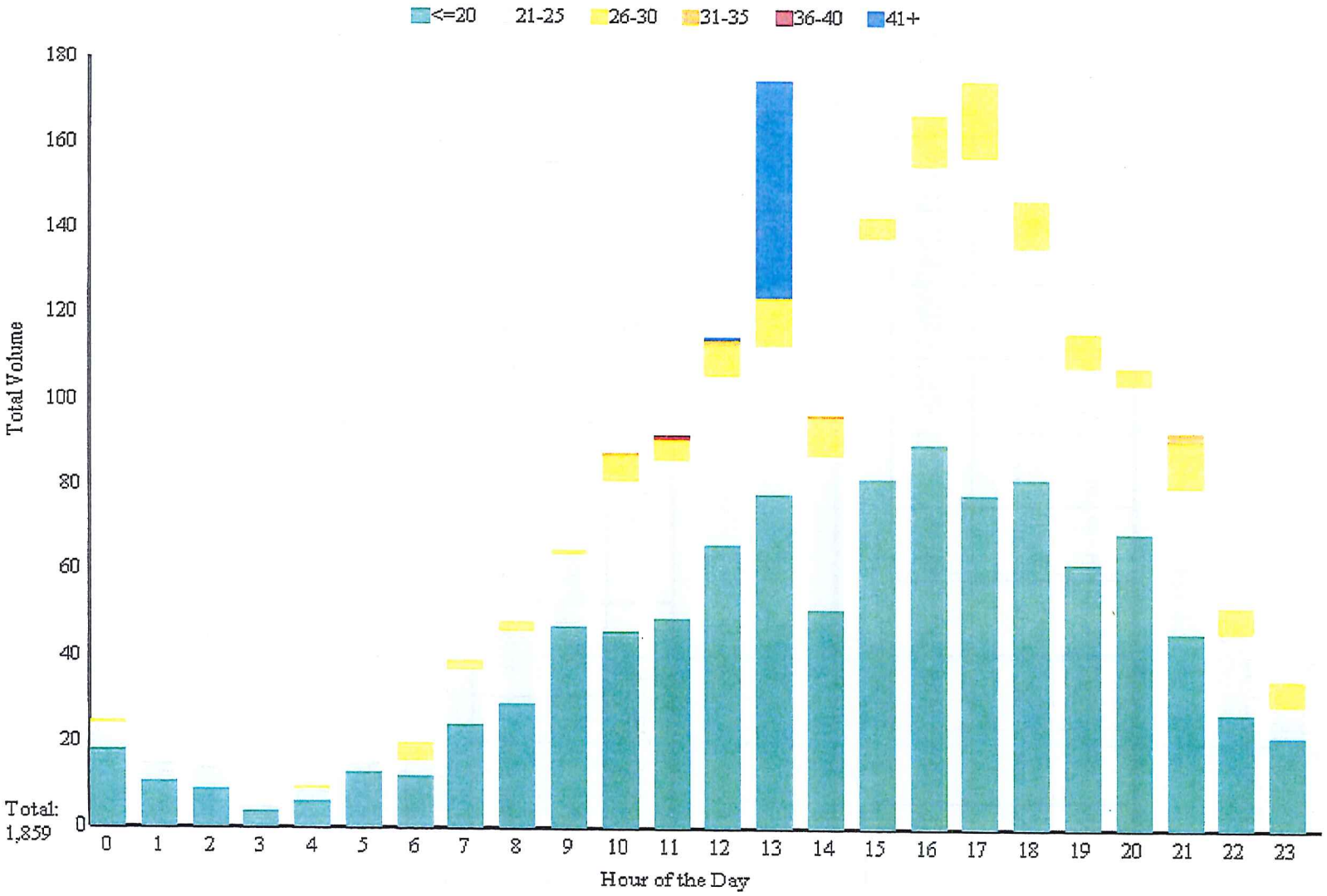
Speed Statistics		10 MPH Pace		Number Exceeding Limit				
Posted	20	Pace Speed	16 to 25	Speed	20+	30+	40+	Total
#At/Under Limit	1021	# in Pace	1193	Number	780	6	52	838
# Over Limit	838	% in Pace	64.17%	Percent	41.95%	0.32%	2.79%	45.07%
Average Speed	20.18	85% Percentile	25					

Speed/Time/Volume Graph

Location: Birch Bluff Road
Dates: 06-14-13 to 06-21-13

Zone: Residential
Speed Limit: 20 MPH

Travel Direction: NE



05-01-2014, 10:39:21

Traffic Survey Summary

Location: Birch Bluff Road
Start Date: 06-04-13
End Date: 06-14-13

Zone: Residential
Start Time: 12:57:37
End Time: 12:16:09
Travel Direction: SW

Speed	1 - 19	20 - 21	22 - 23	24 - 25	26 - 27	28 - 29	30 - 31	32 - 33	34 - 35	36 - 37	38 - 39	40 - 999
Volume	2374	784	873	513	226	81	23	9	5	0	3	12
% of Total	48.41%	15.99%	17.8%	10.46%	4.6%	1.65%	0.46%	0.18%	0.1%	0%	0.06%	0.24%
									Total Vehicles: 4903			

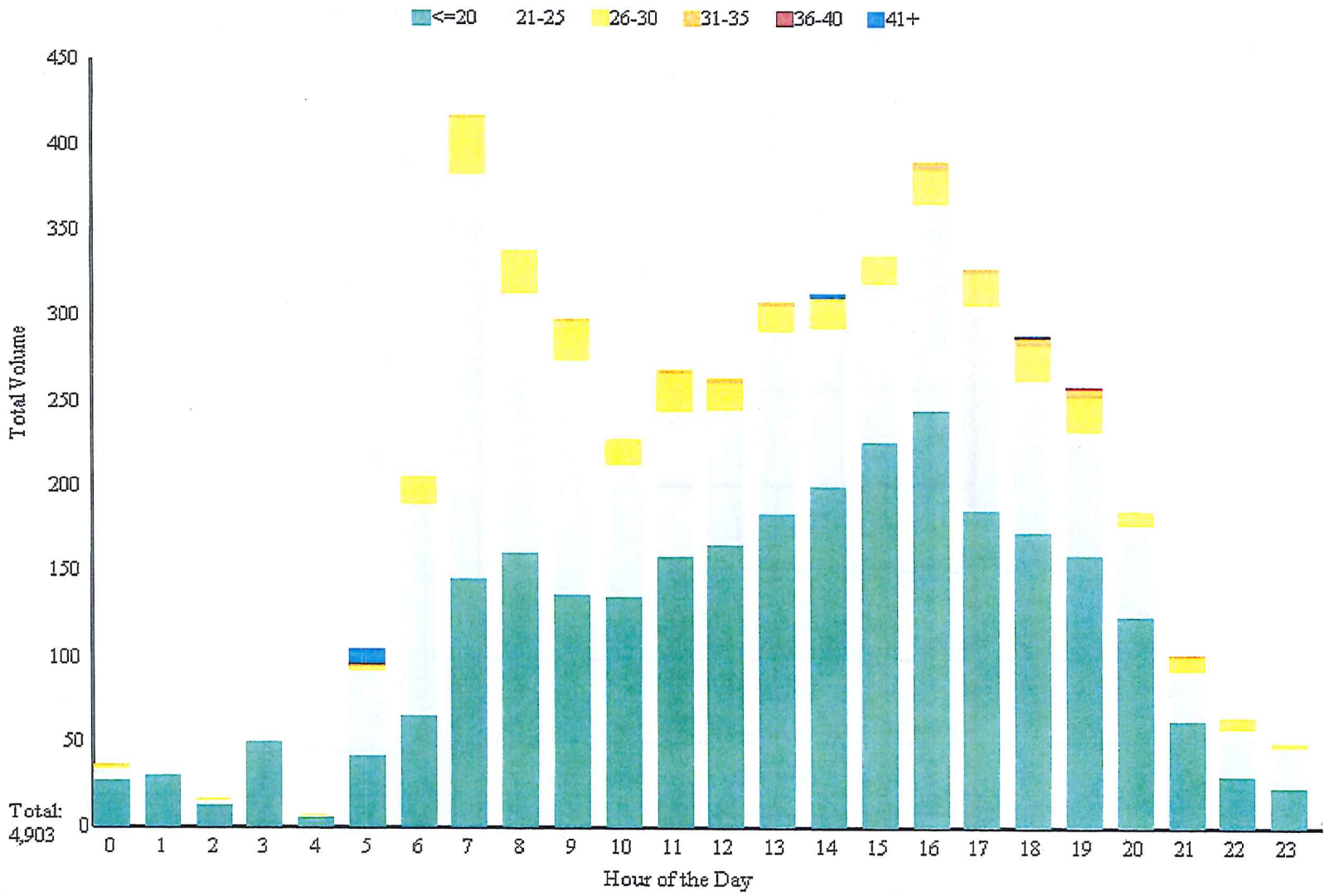
Speed Statistics		10 MPH Pace		Number Exceeding Limit				
Posted	20	Pace Speed	16 to 25	Speed	20+	30+	40+	Total
#At/Under Limit	2753	# in Pace	3094	Number	2109	29	12	2150
# Over Limit	2150	% in Pace	63.1%	Percent	43.01%	0.59%	0.24%	43.85%
Average Speed	18.17	85% Percentile	24					

Speed/Time/Volume Graph

Location: Birch Bluff Road
Dates: 06-04-13 to 06-14-13

Zone: Residential
Speed Limit: 20 MPH

Travel Direction: SW



How many "trips" does the average household generate? Ten

Have your neighbors and their teenagers transformed your once quiet residential street into something akin to Grand Central Station?

You aren't alone in your concern about the amount of traffic in your neighborhood. In fact, you might be surprised at the number of trips your own residence generates. Transportation planners are also interested in the number of trips you and your neighbors generate.

Each time a vehicle arrives at or departs from your residence, one "trip" has been generated. Going to work in the morning counts as one trip and returning home in the evening counts as another. Transportation planners combine the average household trips with similar information from other land uses such as offices, shopping centers, and entertainment and recreational facilities to get an overall picture of traffic system needs. That information is utilized to project how many lanes our roads must have to provide free flowing traffic.

National study averages are often used to determine trip generation. While the average home generates slightly more than 10 trips per day, studies reveal wide variations in the actual number of trips. Homes in senior citizen housing developments can average as low as three trips per day, while residences in active family neighborhoods can generate as many as 20 trips per day.

Homes constructed many miles from shopping centers generate fewer trips than homes in close proximity to shopping centers. Why? Because residents further away from grocery stores and shopping malls are more likely to do their shopping on the way home from work or on their lunch hour. A single trip may serve many purposes: work, shopping, and even entertainment.

The increasing popularity of VCR's, big-screen TV, backyard pools, and other home amenities affect the number of evening and weekend trips generated by each house. The use of mail-order shopping results in more trips during the day for deliveries, but fewer trips in the evening for shopping.

Changes in technology, average family size, entertainment, and shopping habits all impact the average number of trips generated by a residence. Smaller families generate fewer trips, but the expanding number of women in the workforce and multi-vehicle families increase the number of trips.

Transportation planners pay attention to long-term impacts caused by these societal changes in order to provide accurate projections on the need for transportation systems.

If you don't think your household generates an average of 10 trips per day, try counting for a week. Keep track of your visitors and don't forget deliveries and services like pizza, mail, newspapers, and trash pickup.

Why shouldn't we have speed bumps to slow down the hot rodders?
The control of speeding in residential neighborhoods, while maintaining acceptably safe street and roadway conditions, is widespread concern which requires persistent law enforcement effort. The inability of posed speed limit signs to curb the intentional violator, leads to frequent demands for installation of "speed bumps" in public streets and alleys. However, actual tests of various experimental designs have demonstrated the physical inability of a speed bump to control all types of lightweight and heavyweight vehicles successfully. In fact, a soft sprung sedan is encouraged to increase speed for a better ride, while some vehicles may lose control.

The courts have held public agencies liable for personal injuries resulting from faulty design. Increased hazard to the unwary; challenges to the daredevils; disruption of the movement of both emergency and service vehicles; and undesirable increase in noise have caused speed bumps to be officially rejected as a standard traffic control device on public streets and alleys.